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VOLUME 3

MACKENZIE VALLEY PIPELINE INQUIRY

RESPONSES OF CANADIAN ARCTIC GAS PIPELINE LIMITED

TO SUBMISSIONS

MADE BY SOME OF THE PARTICIPANTS IN THE INQUIRY

DECEMBER 6, 1976

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555 Bentall Building

444-7TH AVENUE SOUTH WEST

Calgary, Alberta
Canada

T2P 0Y1

TELEPHONE (403) 266-2011

TELECOPIER (403) 264-5973

TWX 810-821-4670

TELEX 038-25303

FILE NO. 58918 JJM

December 6, 1976

Mr. Ian Wadell
Special Counsel
Mackenzie Valley Pipeline Inquiry
c/o Law Courts
800 West Georgia Street
VANCOUVER, British Columbia

Dear Sirs:

Re: Arctic Gas Responses to Recommendations for
Terms and Conditions

Enclosed are the responses of Arctic Gas to the recommendations for terms and conditions that were advanced, by way of argument, by Commission Counsel, Foothills and participants in Yellowknife during the week of November 15th, 1976.

As you appreciate, limited time has been available for preparation of these responses. Arctic Gas has therefore responded to many recommendations for terms and conditions in the same level of detail in which the various recommendations were made. In some cases, revisions have been suggested or it has been pointed out that the level of detail has not proved necessary at this stage.

We wish to stress that our detailed response has been necessitated solely by the extremely detailed nature of the recommendations for terms and conditions and the Arctic Gas responses cannot be taken as giving support to the overall approach taken by Commission Counsel and certain of the participants, particularly CARC.

We fully agree with and support the position put forth by Mr. Carson Templeton in his argument:

"In my opinion, the terms and conditions should be written as

MacLeod Dixon

December 7th, 1976

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a performance specification - not as a construction specification or project handbook. None of us can write a complete handbook for this project nor can we, or should we attempt to, write a detailed construction specification at this stage. We should, in my opinion, specify as clearly and precisely as we can the results or performance we expect the project to achieve, not how to achieve those results or that performance . . . When and if the government adopts terms and conditions, the terms and conditions will change from recommendations to regulations and may well prevent productive innovation by the regulatory agency and/or the permittee later."

Arctic Gas shares with Mr. Templeton the opinion that the "agency" employees and consultants and Arctic Gas are best able to prepare the "how to achieve" and "demonstrations of achievement" details which will be required later.

We would also like to draw attention to the practice, common throughout the Commission Counsel Submission, of introducing apparently arbitrary quantitative standards to be applied during various phases of pipeline development. In many instances, there is no justification for the standards, either in the body of the report, in the testimony before this hearing, or in the scientific literature. In others, notably the proposed use of the Standard Project Flood, recognized techniques seem to have been misapplied. Specific criticisms of those recommendations which include quantitative standards form part of our responses to the Commission Counsel Submissions. Where we have found the recommended standard to be arbitrary or ill-founded, we have either:

- a. suggested that there is insufficient information available to arrive at a precise quantitative standard and that each case must therefore be decided on its own merits; or
- b. in those areas where there is a sufficient body of information, suggested a more realistic standard based on our own understandings of the subject.

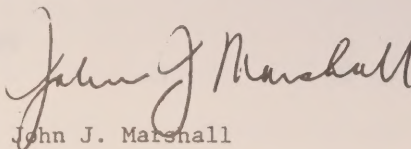
We would concede that in some subject areas, where there is presently insufficient information, it would be desirable from the point of view of both Applicant and Government to have quantitative standards. In such cases, we would look favourably on a recommendation that demonstrated: first, that an area of concern had been identified; second, that there was a reasonable expectation that quantitative standards could be developed; third, that as yet there were insufficient data available to define such standards; and fourth, that studies should be undertaken by government agencies and/or Arctic Gas to arrive at suitable quantitative criteria.

This point was made in oral argument.

It might be argued that even poorly documented quantitative standards are better than none at all, better than the site-specific, case-by-case approach which Arctic Gas generally prefers. (For example, Commission Counsel recommends that stockpile sites be located at least 300 feet from any river bank or shore, that wharf sites be located at least $\frac{1}{4}$ mile from any stream or river mouth, that all fuel and chemical storage areas and major camps shall be located at least 1,000 feet from any river bank or shore, and that no blasting be permitted within one mile of sites where fishing is actively in progress. Arctic Gas has responded that such distances are arbitrary and meaningless and that each site must be assessed on its own merits, before exact locations are determined). We would argue that there is great danger in establishing ill-considered standards, giving an aura of authenticity to quantities which have no basis in fact and fostering the notion that because some facility has been constructed in compliance, environmental and social concerns are necessarily protected.

You will appreciate that these responses have been prepared in a rather limited amount of time. If you feel that you would be assisted by amplification, Canadian Arctic Gas is, of course, ready to co-operate in any way.

Yours very truly,


John J. Marshall

JJM/jr

cc. Mr. Ian Scott, Q.C.

cc. Mr. R. J. Gibbs, Q.C.

cc. Participants

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RESPONSES OF CANADIAN ARCTIC GAS PIPELINE LIMITED TO
SUBMISSIONS MADE BY SOME OF THE PARTICIPANTS IN THE INQUIRY

GENERAL

In addition to preparing detailed comments on some of the recommendations made by Commission Counsel, Arctic Gas has reviewed the submissions made by a number of the other Participants and is setting out in this volume comments on those submissions.

It should be noted that the following comments should not be considered to constitute a full reply to all of the submissions made by these Participants. Failure by Arctic Gas to comment on a specific term and condition which is contrary to the evidence and argument, presented to the Inquiry by Arctic Gas, should not be construed as a change in the Arctic Gas position on that particular matter.

It will be observed that the following comments vary in degree of detail and in most cases deal only with specific recommendations made by the Participants. Arctic Gas' answers to the general positions taken by these Participants are contained in its final argument made on November 15th and 16th, 1975 (Volumes 200 and 201 of the Transcripts). It will also be observed that in situations where a Participant has made a recommendation similar to that made by Commission Counsel, Arctic Gas has not repeated its comment on that recommendation but has instead referred to its response to the corresponding recommendation of Commission Counsel. Reference should be made to the general discussion which can be found under the heading "General Comments on "Introduction" - "Basic Issues" - "Native Society" and "Native Land

Claims" which sets out the basis on which the responses to Commission Counsel's submissions were prepared.

COMMENTS ON THE SUBMISSION OF THE
CANADIAN ARCTIC RESOURCES COMMITTEE

GENERAL

The following comments are prepared using the written argument filed by the Committee with the Inquiry prior to the commencement of oral argument.

Arctic International Wildlife Range

This subject was generally dealt with by Mr. Marshall during Final Argument (Marshall, Vol. 201) and the following comments deal with the specific points raised in this submission on the Range.

Page 1, para. 3

"...and the only area (ANWR) with any reasonable possibility of wilderness designation by the U.S. Congress."

RESPONSE:

The Chugach National Forest also qualifies for wilderness status.

Page 3, Para. 1

"The evidence of witnesses before this Inquiry in support of the Range have made it clear that the creation of an energy corridor through the Range is completely incompatible with the objectives of the Range and regard the pipeline crossing of the Range as a

major and adverse impact on the area."

RESPONSE:

The ANWR was established by Secretary of the Interior Fred A. Seaton by Public Land Order 2214, dated December 6, 1960, for the "purpose of preserving unique wildlife, wilderness and recreational values." However, that Public Land Order specifically made the ANWR subject to the provisions of the mineral leasing laws and, therefore, permits multiple uses, including rights-of-way for natural gas pipelines. This, too, is a specific purpose of ANWR. PLO 2214 provides (emphasis added):

"For the purpose of preserving unique wildlife, wilderness and recreational values all of the hereinafter described area in northeastern Alaska, containing approximately 8,900,000 acres is hereby, subject to valid existing rights, and the provisions of any existing withdrawals, withdrawn from all forms of appropriation under the public land laws, including the mining but not the mineral leasing laws, nor disposals of materials under the Act of July 31, 1947 (61 Stat. 681; 30 U.S.C. 601-604), as amended, and reserved for use of the United States Fish and Wildlife Service as the Arctic National Wildlife Range;"

As one might expect, there is a history behind the establishment of the ANWR. For example, during 1959-60, hearings¹ were held on legisla-

¹See Hearings on H.R. 7045 "A Bill to Authorize the Establishment of the Arctic Wildlife Range, Alaska, and For Other Purposes", before Subcomm. on Fisheries and Wildlife of the House Comm. on Merchant Marine and Fisheries, 86th Cong., 1st Sess. (1959) and Hearings on S. 1899 "A Bill to Authorize the Establishment of the Arctic Wildlife Range, Alaska, and for Other Purposes" before the Subcomm. on Merchant Marine and Fisheries of the Senate Comm. on Interstate and Foreign Commerce, 86th Cong. 1st Sess., Pts. 1 and 2 (1959).

tion which would have authorized the Secretary of the Interior to establish the ANWR. Secretary Seaton sought authorization from Congress to establish the ANWR while preserving Federal ownership of the surface lands. Under existing law, absent Congressional action, the Secretary could only allow subsurface mining with alienation of surface ownership. At the hearings, the DOI consistently maintained the position that the ANWR should be open to multiple uses such as those provided for in the mineral leasing laws - a purpose ultimately embodied in PLO 2214. Indeed, this is further emphasized by the fact that at the time the ANWR was established, the DEW line sites were in existence, which is a utilization of lands within the boundaries of the ANWR.

As a "wildlife range" the ANWR is administered by the Secretary of the Interior under NWRSA. Under the DOI's regulations implementing that Statute, a "Wildlife Range" means "any area of public land administered by the U.S. Fish and Wildlife Service for the protection and management of wildlife resources under the terms of an Executive or Public Land Order establishing a specific area", 50 CFR 25.1 (1975).

Under Section 668dd(d) (2) of the NWRSA, the Secretary of the Interior is authorized to "(2) permit the use of, or grant easements in, over, across, upon, through, or under any areas within the System for purposes such as but not necessarily limited to, powerlines, telephone lines, canals, ditches, pipelines, and roads, including the construction, operation and maintenance thereof, whenever he determines that such uses are compatible

with the purposes for which these areas are established."²

From the standpoint of wildlife, the Arctic coastal plain (including the coastal portion of the ANWR) is distinguished for two principal reasons: (1) it is the traditional calving grounds for the Porcupine caribou herd; and (2) the area along the coast of Alaska is known for its seasonal use by birds. As noted above, Arctic Gas has undertaken over five years of intensive environmental studies in the north. The expert botanists, mammalogists, ornithologists, and ichthyologists undertaking these studies have concluded that if Arctic Gas constructs, operates and maintains the pipeline as it proposes, following their recommendations, it will not have a serious adverse impact on fish, wildlife, or vegetation. The "wildlife range" was established principally for the benefit of wildlife. Therefore, when, as here, it can be shown that the pipeline will not seriously adversely impact wildlife usage of the coast and, therefore,

²The 1973 amendment to the MLA provides in Section (b) (1) that a "right-of-way through a Federal reservation shall not be granted if the Secretary... determines that it would be inconsistent with the purposes of the reservation" (30 U.S.C.A. 185(b) (1)). Section 185(g) provides that "[n]o rights-of-way for the purposes provided for in this section shall be granted or renewed across Federal lands except under and subject to the provisions, limitations, and conditions of this Section" (30 U.S.C.A. 185(g)). Thus the provisions of the NWRSAA may have been superseded by the amendments to the MLA of 1973.

In proposed rules issued by the U.S. Fish and Wildlife Service, 41 Fed. Reg. 11314 (March 18, 1976), the Service states that "compatible" means that the "requested right-of-way or use will not interfere with or detract from the purposes for which units of the National Wildlife Refuge System are established. The term 'consistent' as referenced in Section 28(b) (1) of the Mineral Leasing Act of 1920, as amended, ...shall be deemed to have the same meaning as "compatible" as defined herein" (41 Fed. Reg. 11315). Therefore, "compatible" and "consistent" seem to be synonymous for purposes of the issuance of rights-of-way and will be briefed accordingly herein.

the coastal portion of the ANWR, it follows that the pipeline will not be "inconsistent" or "incompatible" with the principal purpose for which the ANWR was established. Moreover, the construction of the pipeline through the ANWR will not have a serious adverse impact on the land of the ANWR, since it is planned to restore disturbed areas to their natural state, through revegetation and other mitigative measures.

Page 4, para. 4

"It appears that economic and engineering concerns ranked ahead of considerations of the environment in the selection of the Arctic Gas Prime Route which runs through the Range along the coast."

RESPONSE:

With the exception of Dr. Gunn, all other Arctic Gas environmental consultants prefer the Arctic Gas coastal route on the basis of biological considerations. This preference, contrary to the witnesses who testified on behalf of the International Wildlife Range panel, was based on scientific evidence.

Recommendations

No. 3

"That the Canadian authorities work in cooperation and in conjunction with the American authorities to have the proposed range receive the highest form of protection under their respective laws. Canada should provide whatever assurances are required to have the American portion

declared a "wilderness area" and arrange for a similar declaration of the Canadian portion."

RESPONSE:

Arctic Gas has always recognized that the ANWR has considerable aesthetic significance for some people, including many who will never see the area. Whereas major portions of the ANWR may be considered to have "wilderness values", it is clear that the coastal portion of the ANWR no longer has "wilderness values" as that phrase is commonly understood. The history of the economic and technological development of the arctic coastal plain, the presence of the existing and abandoned DEW Line sites, the village of Kaktovik, and the air traffic associated with these facilities belie this assertion. The Arctic Gas project will simply add to the already "pronounced" evidence of man on the Arctic Coast.

Even assuming, however, that the arctic coastal plain could be considered to possess "wilderness values" to some, the impact of the Arctic Gas project on those values would be negligible in light of the acreage associated with the project. Only 5 square miles would be required for the project out of the 14,000 square miles associated with the total ANWR and the 4,200 square miles associated with the coastal portion of the ANWR. As noted above, the pipeline will be buried and the ditch line revegetated so that the pipeline itself cannot be said to detract from the coastal plain's asserted "wilderness values". In the future, a maximum of three compressor stations, about 50 miles apart, will be installed in the ANWR as necessary to assure full utilization of the line (thereby keeping con-

sumer costs to a minimum), but those stations should no more materially detract from any "wilderness values" of the landscape than do the DEW Line stations, village, and airstrips presently located along the coast. The stations certainly will add to the evidence of man's presence, but their impact will be local in nature. In any event, the "wilderness value" of the coastal portion of the ANWR will be dependent upon the perception of the individual, the method by which the ANWR is viewed, i.e. land, air or sea, and the nature of the surrounding elements (air, water, odor, vistas, wildlife, temperature, etc.) at the time it is viewed. The pipeline right-of-way and associated facilities will be more visible from the air, as are the DEW Line stations. On the ground, these facilities will be unperceived relatively short distances away from their actual location.

The entire arctic coastal plain has been the site of periodic development activities, including research projects and exploratory investigations. In addition to the installation of the DEW Line facilities all across the coast, development activities in and around Prudhoe Bay have increased the degree of human activity in the vicinity of the route. Aside from the villagers of Kaktovik, the 50 full-time DEW Line personnel at Barter Island represent a substantial human presence. By comparison, about 40 employees will be needed for normal operation and maintenance of the gas pipeline once it is constructed, and they will service the entire line in Alaska, not just the portion in the ANWR. They will not be constantly present in the ANWR. It will be during the one winter construction period that full construction crews will be present in the ANWR, with much smaller numbers in the preceding year for preliminary work. In these circumstances,

it simply cannot be said that the Arctic Gas project will significantly detract from whatever asserted "wilderness values" the coastal portion of the ANWR harbors.

There is a very limited incidence of recreational use of the ANWR. The construction, operation, and maintenance of the proposed pipeline simply will not alter whatever recreational use presently is made of the 9,000,000 acre ANWR. Fishing, hunting, mountain climbing or other recreational uses will continue.

In sum, the Arctic Gas project will be compatible with the purposes of the ANWR and any future extension into Canada (one of which is multiple use) because: (1) wildlife, fish and vegetation will not be seriously adversely affected by the construction, operation or maintenance of the project, and any potential impact will be local and minor in nature; (2) the location of the proposed coastal route on the arctic coastal plain is in the vicinity of "pronounced" human activity and development; and (3) the pipeline will be buried and the ditchline revegetated. While above-ground facilities will be visible, the total area they will occupy will be very small in relation to the coastal portion of the ANWR, and infinitesimal in comparison with the total area of the ANWR.

In summary, the ANWR is not now a "wilderness area" in law, there is no pending proposal to make it such, and the coastal portion of the ANWR is not, in fact, a wilderness.

International Biological Program (IBP) Sites

Recommendations

No. 1

"If a gas pipeline right-of-way is granted, there should be an advance reservation of those proposed IBP sites near the projected pipeline route which have already been submitted in application form to the Minister of Indian and Northern Affairs. This would involve three proposed IBP sites: Dolomite Lake - Campbell Lake site; Willow Lake (Brackett Lake) site; and Caribou Hills site."

RESPONSE:

This seems inconsistent with the purpose of establishing the IBP sites. For example, the Brackett Lake site was purposely extended to include an area through which the pipeline would pass so that monitoring programs on the effect of the pipeline on the environment could be established. Thus, any possible realignments around the various IBP sites must be discussed with IBP personnel.

The Protection of Water Resources

Recommendations

No. 6

"The pipeline company should withdraw water from all rivers and streams where there are overwintering fish populations, or spawning areas downstream from such areas. If a pipeline is to be built along the Yukon North Slope, no water is to be withdrawn from any rivers or streams that have flowing water at any time of the year." (85A:12753-57;

Steigenberger, 103:15780-83).

RESPONSE:

This recommendation is ambiguous, and we suggest it would be better worded as follows: "The Pipeline Company should only withdraw water downstream from spawning or overwintering areas unless it can be demonstrated that it would not adversely affect the spawning or overwintering areas." If the criteria set out in recommendation (2) are adhered to, any valid concern will be looked after.

No. 10

"Site-specific studies should be undertaken to determine the effect on water bodies of the removal of snow by snow harvesting, especially upon fish populations." (Jarvis, 67:9859).

RESPONSE:

This is redundant with No. 9. It also implies studies rather than evaluations, and should be deleted.

Waste Disposal

Recommendations

Sewage Treatment

No. 1

"The pipeline company must consult with local communities well ahead of time to determine the type of facilities for sewage and water needed in the communities to ensure quality and safety of local water supplies

and local community preferences can be followed." (Burrell, C-21:2156).

RESPONSE:

This is ambiguous. Does it mean designing a facility for the community or is it to protect water sources of the community? The facility should be designed to meet its original objective, that is, effective treatment of sewage to a standard that will protect the environment and human welfare.

No. 2

"The final choice made as to sewage treatment methods in the case of camps, whether the use of lagoons, with or without package treatment plants, using the physical chemical process, or the biological or activated sludge process, or the use of swamplands must be based on the most stringent water quality standards and safety requirements." (Lazerte, 63:8991-92).

RESPONSE:

The quality of effluent should be determined based upon the life of the project and the location of disposal. Standards should be allowed to vary on a site to site basis. See Response to Commission Counsel, Construction Services and Activities, Waste Water, Sewage, Recommendations #'s 1, 9, 10, 11.

No. 3

"The use of swamplands for the release of effluents from sewage lagoons

must be carefully controlled, and be limited to the summer period when lagoon treatment is at a high level. The effluent to be disposed of in this way must be tested to ensure it meets the standards set by regulatory agencies."

RESPONSE:

See Responses to Commission Counsel, Construction Services and Activities, Waste Water, Sewage, Recommendations #'s 1, 2, 21, 22, 23, 25.

No. 6

"Discharges directly into bodies of water and especially into running water are to be prohibited."

RESPONSE:

See Responses to Commission Counsel, Construction Services and Activities, Waste Water, Sewage, Recommendations #'s 21, 22, 25.

No. 7

"Chlorination of effluents should be prohibited except where there is a possibility of contaminating a domestic water supply."

RESPONSE:

See Responses to Commission Counsel, Construction Services and Activities, Waste Water, Sewage, Recommendations #'s 13, 17.

No. 8

"Sewage sludge resulting from secondary treatment processes should be incinerated."

RESPONSE:

See Response to Commission Counsel, Construction Services and Activities, Solid Wastes, Camps, etc. Recommendation #9.

No. 9

"Unless further study should show a clear advantage for a mechanical treatment plant system, the physical chemical process of water treatment may be used, using chemicals to precipitate solids with subsequent disposal by incineration, and secondary treatment by incineration, subject to meeting approved standards of water quality and safety."

RESPONSE:

See Response to Commission Counsel, Construction Services and Activities, Solid Wastes, Camps, etc. Recommendation #9.

No. 15

"Back-up units for mechanical treatment plants must be installed."

RESPONSE:

See Response to Commission Counsel, Construction Services and Activities, Waste Water, Sewage, Camps, etc. Recommendation #36.

No. 16

"The sewage treatment systems must be designed with a duplication of essential equipment, such as two blowers on a biological unit."

RESPONSE:

See Response to Commission Counsel, Construction Services and Activities, Waste Water, Sewage, Camps, etc. Recommendation #36.

No. 21

"Sewage treatment equipment, and facilities used during construction but surplus to operational needs, should be offered on a right of first refusal basis to northern communities. Other equipment should be removed for recycling."

RESPONSE:

Sewage treatment facilities must be matched to a particular requirement; and that required by Arctic Gas during construction may not suit the communities.

ALTERNATIVE RECOMMENDATION:

Sewage treatment equipment and facilities used during construction and surplus to operational needs will be made available to communities on a mutually acceptable basis whenever the equipment suits the needs of the community.

No. 24

"Liquid wastes originating from the wash of laundries and kitchen facilities must undergo secondary treatment." (Stamberg, 115:17544-55).

RESPONSE:

Secondary treatment of wastes should be defined on the basis of use; i.e., number of man days facility is in use. The above statement is too broad.

No. 26

"Back-up portable pipeline systems must be provided for each sewage treatment facility."

RESPONSE:

See Response to Commission Counsel, Construction Services and Activities, Waste Water, Sewage, Camps, etc. Recommendation #36.

Garbage

No. 36

"Mobile incinerators should be available along the construction right-of-way for the incineration of loose garbage."

RESPONSE:

The use of mobile incinerators on the ROW should not be a requirement as another means of disposal may be more appropriate.

ALTERNATE RECOMMENDATION:

All garbage shall be disposed of in a manner approved by the Agency.

Transport, Storage and Disposal

No. 42

"Disposal wells should be cautiously used for the disposal of toxic chemicals." (Shaw, 119:18187).

RESPONSE:

Ambiguous! Should read "Disposal wells may be used for the disposal of toxic chemicals with the approval of the Agency."

No. 44

"Hoses, nozzles and all dispensing equipment should be continuously inspected for leaks and spills."

RESPONSE:

The word "continuously" should be replaced with "regularly".

No. 45

"Storage and transport of refined petroleum products in the field should be done no closer than 1/4 mile from a stream. (Steigenberger, 103:15776).

RESPONSE:

Storage and transportation routes should be based on site-specific conditions, not on an arbitrary figure. This broad recommendation would be

a hardship on northerners and on certain northern settlements who would be expected to abide by the same rules as the pipeline company. See Responses to Commission Counsel, Construction Services and Activities, Spill Prevention and Control.

No. 53

"Organic, or any other fine material, should be disposed of off the right-of-way where it could not enter natural waters. Such materials should only be disposed of on a slope where it is done in such a way that no significant amount of sediment can be washed into natural water sources."

RESPONSE:

The words "off the right-of-way" should be removed from the first sentence.

Rare and Endangered Species

Page 1, para. 3

"The rare and endangered bird species may be as well known as the whooping crane, peregrine falcon or gyrfalcon..."

RESPONSE:

The gyrfalcon is not a rare and endangered species in either Canada or the U.S.

Recommendations

No. 5

"The presence of rare and endangered bird species along parts of the proposed pipeline routes on the north slope of the Yukon is one of several reasons why the Canadian Arctic Resources Committee urges that there be no pipeline route on the Yukon north slope. If it is ordered that a pipeline be built along the Yukon north slope the following route considerations are recommended:

- (i) Arctic Gas compressor station No. CA-06 west of Shingle Point plus associated facilities and borrow pits have been sited in the Crow-Phillips goose concentration area and are also in direct conflict with rare or endangered raptor nest sites and must be moved. (Gunn, 94:14222-23)
- (ii) Arctic Gas compressor station No. CA-05 at the Malcolm Delta plus the associated facilities and borrow pits have been sited within the Malcolm Delta goose concentration area and are also in direct conflict with a small cluster of rare and endangered raptor nest sites and these facilities must be moved. (Gunn, 94:14221)
- (iii) Seven peregrine falcon nesting sites have been located within three miles of the proposed Arctic Gas Cross Delta route and one of these nest sites is within three miles of a compressor station and between one and two miles from a compressor station airstrip. The location of the Cross Delta route must therefore be re-examined with the view of rerouting in the areas coming into close contact with peregrine falcon nesting sites. (95:14409)"

RESPONSE:

Most of these alleged "rare and endangered" nest sites are, in fact, gyrfalcons which are not rare and endangered. Furthermore, Arctic Gas has stated that the final alignment will avoid raptor nest sites by at least 2-1/2 miles. In any event, the final site for compressor stations will be selected during final design, at which time this concern and recommendation will be taken into consideration.

No. 10

"Fixed facilities or installations such as pumping stations, compressor stations or work camps should be located at least five miles from known nesting sites for peregrine falcon or any other rare endangered species. Borrow pits and haul roads should similarly be placed to prevent impact on rare birds. (McTaggart-Cowan, 47:6185 and 6190; Hemstock, 83:1242)"

RESPONSE:

Dr. Gunn has stated that based upon his scientific studies, 2-1/2 miles is sufficient. Arctic Gas has accepted this recommendation.

No. 25

"Further studies should be carried out to determine whether fixed wing aircraft or helicopters should be used for pipeline inspection and maintenance flights depending on which form of flight minimizes disturbance to rare and endangered species. (93:14122)"

RESPONSE:

No further studies are required. The results of extensive studies conducted by Arctic Gas for the past 3-4 years show that birds are more disturbed by helicopters than fixed wing aircraft, but do not show significant distress if the aircraft (helicopter or fixed wing) are at an altitude of 2,000 feet or more.

Geotechnical Engineering

(a) Frost Heave and Frost Bulb

Recommendations

No. 1

"This Inquiry concludes that there is not sufficient evidence to determine the environmental impact of a chilled, buried gas pipeline because the question of the nature and extent of anticipated frost heave and frost bulb problems have not been determined. Until there is evidence demonstrating that the problem of frost heave has been fully and accurately understood and the remedial measures proposed have been tested in field experiments covering the broad range of conditions to be encountered, no application for a buried, chilled gas pipeline should be entertained."

RESPONSE:

It has been recommended by Commission Counsel and accepted by Arctic Gas that final designs be subject to review by a Geotechnical Review Board (a part of the Agency). This procedure will cover the concern expressed in this recommendation.

RECOMMENDED ALTERNATIVE:

This recommendation should be deleted.

No. 2

"The use and success of remedial measures proposed by the applicants, particularly those proposed to ensure subsurface draining through the frost bulb, have not been adequately demonstrated. Because of the critical importance of this technique to impact on the fisheries resource this technique must be studied in great detail and no conclusions of environmental impact on the fish resource can be drawn until this information is available and evaluated."

RESPONSE:

Recent investigations by Arctic Gas consultants have shown that the concern is a very limited one in terms of the number of fish overwintering areas which could be affected. Geothermal models now available are the most reasonable way of illustrating the effect of mitigative measures. This work is in progress and will continue through final design.

RECOMMENDED ALTERNATIVE

Significant fish overwintering areas downstream of the proposed pipeline crossing should be identified. Mitigative measures will be incorporated into the final designs to ensure the continued flow of subsurface water where required to sustain the fish. These designs will be submitted to the Agency for approval.

No. 3

"There is insufficient evidence to allow this Inquiry to conclude the appropriate methodology or establish the location for the limit of chilling. Because of the importance of this matter in evaluating the environmental impact, particularly in drainage and erosion control in the discontinuous perma-frost zone, no conclusions on the environmental impact of the gas pipeline is possible until this matter has been further studied and evaluated."

RESPONSE:

This recommendation is unacceptable. The Inquiry can establish broad criteria for preservation of the environment and must do so without final designs or detailed knowledge of the drainage and erosion control technology.

RECOMMENDED ALTERNATIVE:

Delete this recommendation.

(b) Snow Roads

Recommendations

No. 1

"It is written as an unalterable term of any approval to build a pipeline that no permanent or semi-permanent roads or gravel pads or similar access are to be allowed in any circumstances along any portion of the pipeline route and, more specifically, along the north slope of the Yukon or the Mackenzie Delta."

RESPONSE:

We do not propose to build permanent roads along the right-of-way on the Yukon North Slope or the Mackenzie Delta; however, permanent roads may be required between certain facilities such as airstrips, wharfs and compressor station pads. It is unnecessarily restrictive to prohibit permanent road construction along that portion of the right-of-way where the "conventional winter" construction mode is utilized; or where environmental impacts can be reduced by locating permanent roads on the ROW rather than disturbing an otherwise undisturbed area.

ALTERNATIVE RECOMMENDATION:

Delete this recommendation.

No. 2

"Further research be conducted to demonstrate the viability of the use of snow roads on the ice rich soils of the Yukon north slope and Mackenzie Delta in all circumstances likely to be encountered and not merely on the basis of average conditions."

RESPONSE:

The use of snow roads is common practice in the Mackenzie Delta and on the North Slope of Alaska. CAGPL have conducted snow road tests in the Inuvik area. The CAGPL construction plan is based on utilizing snow roads for pipeline construction on the section from Richards Island south for 2 years prior to constructing the pipeline section along the Yukon North Slope. Snow roads will be constructed on the Yukon North

Slope between certain facilities 1 year prior to pipeline construction. We feel that this extensive utilization should be sufficient proof that the required snow roads along the Yukon Coastal Plain and the Mackenzie Delta will be technically feasible and environmentally acceptable, and feel that site specific tests on the Yukon North Slope and Mackenzie Delta are not required. See Arctic Gas Final Argument (Marshall, Vol. 201).

ALTERNATIVE RECOMMENDATION:

As part of its final design submission, the company shall provide evidence that the required snow roads along the Yukon Coastal Plain and the Mackenzie Delta are technically feasible and environmentally acceptable.

No. 3

"The acceptability of snow manufacturing and snow gathering techniques suggested by the applicant be tested and examined under actual field conditions. In particular, research be directed to consider the environmental impact of snow fences and the withdrawal of water for snow manufacturing, particularly along the Yukon northern slope."

RESPONSE:

Arctic Gas has demonstrated the feasibility of snow road construction in accordance with Alternative Recommendation No. 4 - Snow Roads - in the responses to Commission Counsel recommendations. A study assessing the environmental impact of water withdrawal from potential sources along the Yukon North Slope has already been conducted by Arctic Gas by Aquatic

Environments Ltd. Close contact will be maintained with environmental consultants as potential water sources and withdrawal quantities become more clearly defined during final design. See Arctic Gas Final Argument (Marshall, Vol. 201).

ALTERNATIVE RECOMMENDATION:

As part of its final design submission, the Company shall provide evidence that the required snow roads along the Yukon Coastal Plain are technically feasible and environmentally acceptable. As part of this demonstration, the Company shall conduct tests of snow harvesting using fneces on the Yukon Coastal Plain.

(b) River Crossings

Recommendations

No. 2

"All major river crossings should be licenced under the Northern Inland Waters Act and not merely authorized. This would mean that public notice and public hearings may be required before approval can be granted for construction of the major river crossings."

RESPONSE:

This recommendation is unacceptable. It is the position of Arctic Gas that this decision should be left to the Agency overseeing the Project.

RECOMMENDED ALTERNATIVE:

Delete this recommendation.

(c) Construction Scheduling

Recommendations

No. 1

"The applicant, particularly when considering construction on the north slope of the Yukon and in the Mackenzie Delta, has not demonstrated that its construction work schedule is practical in all climatic conditions that may be encountered during the construction season. Therefore a more conservative construction schedule must be required of the applicant, particularly in the early years of construction, to ensure that construction will take place only during those times of the year when environmental damage can be kept within acceptable limits."

RESPONSE:

See Arctic Gas Final Argument (Marshall, T201:31781-31798).

(e) Revegetation

Recommendations

No. 1

"The applicants must conduct further field testing to demonstrate the acceptability of the respective revegetation program particularly on slopes and in areas of ice rich permafrost."

RESPONSE:

At the present time, revegetation work is continuing to find the optimum seed and fertilizer mixtures for sites along the pipeline route.

The recommendation should read "The applicant shall continue field testing of its seed and fertilizer mixtures until it can demonstrate the acceptability of revegetation along the various segments of the pipeline route."

No. 2

"The applicants shall demonstrate that the revegetation program or some alternative program designed to prevent erosion and other adverse environmental impacts, if possible in areas of sensitivity in the event that revegetation cannot take place at the optimum time and in the manner proposed."

RESPONSE:

There appears to be a typographical error in this recommendation.

ALTERNATIVE RECOMMENDATION:

The Company shall demonstrate to the Agency the suitability of its proposed revegetation procedures for the long term control of erosion.

Caribou

Recommendations

No. 1

"The Inquiry recommend against the construction of a gas pipeline from Prudhoe Bay by either the Coastal or the Interior Routes which have been proposed by CAGSL."

RESPONSE:

Evidence strongly supports the position that caribou will not be detrimentally impacted by the Arctic Gas project.

No. 3

"Since one of the most important features of caribou involves their movements and migrations and since an above-ground pipeline presents much more of a barrier to caribou than a below-ground gas line, the report on the Inquiry must state unequivocally that the proponent has not met the requirements of the pipeline guidelines to provide '(i) assessment of the suitability of the applicant's route for nearby routing of the other pipeline in terms of the environmental-social and terrain engineering consequences of the other pipeline and the combined effect of the two pipelines, and (ii) assessment of the environmental-social impact of both pipelines on nearby settlements or nearby existing or proposed transportation systems.'"

RESPONSE:

There is no oil pipeline project proposed or even feasible within the foreseeable future that would interfere with the migration pattern or movements of the Porcupine caribou herd. See Arctic Gas Final Argument (Marshall, Vol. 201).

No. 5

"The Inquiry recommend that the Canadian Government take immediate action in conjunction with the U.S. to examine the relative environ-

mental and social merits of the Fairbanks Corridor alternative as a route for the transportation of Alaskan gas to states south of the 49th parallel."

RESPONSE:

This subject has been entertained in detail before the Federal Power Commission in the U.S.A. The FPC staff prefers the Arctic Gas coastal route on environmental grounds to a combined Fairbanks corridor and Mackenzie Delta supply line. "If Mackenzie Delta gas and Prudhoe Bay gas are both to be considered, then the Arctic Gas project is the best environmentally." (Initial Environmental Brief of the Commission Staff before the Federal Power Commission, Nov. 19, 1976, p. 10.) In any event, this recommendation clearly extends beyond the terms of reference of the Berger Inquiry.

Page 3, last para.

"A much smaller area of habitat is available for calving and summering than is available for wintering and migrations. Also, animals driven from normal calving and summering areas would be more susceptible to insect parasitism and wolf predation. Harassment of caribou under stress could result in calves being separated from their mothers, thereby increasing their susceptibility to all forms of mortality. At calving time, caribou are more vulnerable to predation than at any other time of the year. During calving, the herd structure may have an anti-predator function and splintering of groups may increase the number of caribou killed by wolves. The calving grounds may be

the key in the balance that exists between wolves and caribou. Second best habitat may not be good enough. Therefore the calving grounds should be protected."

RESPONSE:

This paragraph completely ignores the fact that construction would not be taking place during calving, that disturbance would be avoided during the calving period, and that during calving the animals are spread over several thousand square miles and do not interact as a single herd.

Page 4, (iii):

"The compressor stations are to be constructed in the summer and clearly this would be more harmful along the Coastal Route, where the caribou are present throughout the summer, than it would be along the Interior Route." (Calef, 106:16227).

RESPONSE:

This is an inaccurate statement, as it refers to caribou present throughout the coastal route during the summer. It has been clearly established that they do not remain on the coast during the summer (cross-examination of Calef on the location and duration of the August dispersal).

No. 6

"If the Inquiry must make a recommendation for either a Coastal or Interior Route for the transportation of Alaska gas across Canada, then a recommendation should be made in favour of an Interior Route

that would avoid the Arctic International Wildlife Range and the environs of Old Crow and the Old Crow Flats by use of the Interior Route proposed by Calef. (111:16956)"

RESPONSE:

Arctic Gas has demonstrated through scientific studies that the coastal route is clearly preferable from the standpoint of caribou. The argument that interaction during calving is more significant than during migration is moot at best. The point is, there would be considerably more interaction along the interior route. This is not to say that this interaction would be detrimental and could not be successfully mitigated, but that the risk is greater. What better mitigation is there than constructing when the caribou aren't present? The "Calef Route" has not been studied by Arctic Gas or the participants and cannot be considered an alternative.

No. 18

"No permanent roads, except those presently in existence, should be allowed along the pipeline right-of-way; attempts should be made to use existing highways, winter roads and seismic lines during pipeline construction."

RESPONSE:

We do not propose to build permanent roads along the right-of-way on the Yukon North Slope or the Mackenzie Delta; however, a few miles of permanent roads may be required between certain facilities such as airstrips, wharfs and compressor station pads.

It is unnecessarily restrictive to prohibit permanent road construction along that portion of the right-of-way where the "conventional winter" construction mode is utilized. See response to Recommendation #1, Snow Roads, Page A-22, above.

No. 20

"All pipeline support traffic for the Interior Route should be scheduled between June 1 and September 1, the period when the caribou would most likely be in the summer range and completely away from the Dempster Highway and supporting roads."

RESPONSE:

The recommendation should allow the use of all roads when caribou are not being interfered with rather than forbid the use of the roads between any firm calendar dates.

No. 23

"If any elevated pipe sections are to be authorized there should be a minimum clearance of 10 feet; maps should be made of traditional migration routes and crossings constructed accordingly; advantage should be taken of natural terrain features and crossing facilities should be perpendicular to normal migration; design should be such to minimize snow drifting and colours should avoid visual contrast."

RESPONSE:

These are details for final design. The recommendation should just state that "Designs of elevated pipe sections must be approved by

the Agency".

No. 25

"Access roads built for the construction period must be closed off after construction requirements are met under the authority of government officials in order to prevent greater access by hunters and numbers of people with potential detrimental effect on caribou."

RESPONSE:

Access roads built for construction may be required during operations and all should not therefore be permanently closed.

No. 28

"Sections 24.1, 24.5(a) and 24.5(b) in Volume II, (Towards An Environmental Code) should be enforced to protect caribou from harassment during blasting."

RESPONSE:

The Company has agreed that blasting will not be carried out without prior approval of the Agency. As described in the response to "Implementation" in the CARC Argument, and in "Project Regulation" in the Responses to Commission Counsel Recommendations, the Agency has environmental, sociological, and engineering responsibilities. This recommendation is therefore not required.

No. 29

"Since Arctic Gas has agreed that it will be up to the environmental

experts monitoring the project to determine whether the herd is of sufficient size to merit a construction shutdown, it is mandatory that the environmental inspector have the authority to order immediate shutdown of construction."

RESPONSE:

The environmental inspectors should be responsible to the Chief Inspector, who should ill have authority to shut down pipeline construction activities. See Response to Commission Counsel, Project Regulation - Enforcement, Recommendations #'s 8 and 9.

No. 30

"Detailed scheduling must be arranged in such a way to prevent slippages in timing such as occurred in Alaska. Chances of mortality to caribou by slippage of the construction shcedule on the calving grounds and in areas of post-calving aggregations are very high. Large migrations might take one week to pass a construction site yet Arctic Gas has not included allowances for such events in calculated non-productive days. A more realistic and flexible schedule must be prepared to ensure that construction activities do not interfere with caribou migrations and critical biological periods. (Calef, 106:16201-05; Lent, 110:16899-900; Bergerud and Lent, 111:16937; XXXIV:4469-70)."

RESPONSE:

Evidence shows that the winter construction period will be during a time when there is no migration in the area; in fact, the time of arrival on the North Slope is quite consistent from year to year and is several weeks after the proposed shutdown of winter construction. The construction schedule proposed by Arctic Gas has enough flexibility to accommodate any

unexpected interaction with caribou. However, due to the detailed preconstruction studies and the on-going monitoring program which will be continued through construction, it is highly unlikely that any undue disturbance to caribou will occur.

No. 34

"During this Inquiry, the need for additional studies has been stressed for caribou more than for any other subject. The Canadian Arctic Resources Committee recommends that the following suggested studies be initiated before final design review of any proposed gas pipeline."

RESPONSE:

Comments on each of the suggested studies follow:

1. Not required.
2. Not required. Sufficient research already conducted.
3. Not required, nor would it be possible.
4. No further studies required along interior route.
5. Not required. Sufficient research already conducted.
6. Agree in principle. Should be done in cooperation with the government.
7. Not required. Sufficient studies on disturbance already conducted. Physiological effect not practical.
8. Agree, therefore #6 not required.
9. Not required. Sufficient research on migration already conducted.
10. Not required. Sufficient studies already conducted.
11. Not relevant nor possible.

12. Agree.
13. Not required. Reindeer herd is managed.
14. Agree.
15. Agree.
16. Agree in principle, but not required for Arctic Gas project.
17. Agree. In fact, Arctic Gas plans to undertake this.
18. This is part of Arctic Gas' ongoing monitoring study.
19. Not required. Sufficient studies of compressor station disturbance have been conducted.
20. Not required. Sufficient work already conducted.
21. This is part of Arctic Gas' planned monitoring program.
22. Not required. Not relevant to Arctic Gas project.
23. Not required. Not relevant to Arctic Gas project.
24. Agree.
25. Agree.
26. Sufficient studies in harassment already conducted.
27. Not required for buried gas pipeline.
28. Not required for buried gas pipeline.
29. Agree in principle with respect to caribou, but not wolves.
30. Agree in principle with the exception of wolves.
31. Agree, but the number of years following construction should not be final.
32. Not required nor relevant.
33. Not required. SO₂ will not be a problem.
34. Sufficient research already conducted.
35. Not required. Access will not be significantly increased.

36. Agree.
37. Not required nor relevant.
38. Not required nor relevant to coastal route.
39. Not required. Entirely academic.

Reindeer

Recommendations

No. 1

"Evidence from Scandinavia indicates that railways or highways are a persistent source of annual mortality for reindeer. Winter roads should be used with great care and no permanent roads should be permitted in the reindeer winter range so as to avoid the potential for collision between vehicles and reindeer."

RESPONSE:

We do not propose to build permanent roads along the right-of-way on the Yukon North Slope or the Mackenzie Delta; however, permanent roads may be required between certain facilities such as airstrips and compressor station pads.

No. 2

"Based on the effects of development on reindeer in Scandinavia, in

each case the interruption of the migratory movement resulted in a decline in reindeer population or disruption of their behaviour. Abandonment of the range gradually takes place as fewer animals will attempt to cross highways or other lines bisecting their traditional range. Any proposed pipeline route and accompanying access route must assure that this does not happen in the Mackenzie Delta region. (Calef, 106:16199; Jakimchuk, 89:13484)."

RESPONSE:

In the Mackenzie Delta, the reindeer are herded and directed in the area the herder wants to go. His judgment is based on a large number of factors, including overgrazing of certain areas. Abandonment of certain areas would be at the discretion of the herder, not the reindeer.

No. 4

"If a pipeline and production facilities are to be approved for the area used by reindeer, studies should be conducted on the long term effects that dust deposits would have on vegetation, particularly lichens.

A study of the problem of dust on vegetation should also examine the techniques available to prevent this problem, including both short and long term effects of the use of oil as a road-surfacing material. (Lent, 111:16942)."

RESPONSE:

The effect of dust on vegetation will be negligible, especially

when one considers the amount of traffic in the area around the reindeer grazing areas.

Dall Sheep

Recommendations

No. 3

"Flight paths of fixed-wing aircrafts should be set at 3,000 ft. ..."

RESPONSE:

What is the basis for 3,000 ft.? Arctic Gas studies have shown that 2,000 ft. is adequate.

No. 8

"Therefore the problem of infrequent flights requires further study and research."

RESPONSE:

Sufficient studies have been conducted and suitable mitigation has been developed. Additional disturbances caused to the sheep by further studies are not warranted.

Aquatic Furbearers

Recommendations

No. 5

"Blasting should be prohibited from an area within 50 feet of a lake or pond area containing significant populations of muskrats. Blast-

ing destroys muskrat habitat and in some cases kills the muskrat outright and also interferes with trapping operations."

RESPONSE:

The Company has agreed that blasting will not be carried out without prior approval of the Agency. As described in the response to "Implementation" in the CARC Argument, and in "Project Regulation" in the Responses to Commission Counsel Recommendations, the Agency has environmental, sociological, and engineering responsibilities. This recommendation is therefore not required.

Other Mammals

Recommendations

No. 4

"A study must be undertaken to determine the effect of oil or other chemical spill on the polar bear ..."

RESPONSE:

The study, if even conceptually possible, would probably be more harmful to the bears than an actual spill.

No. 5

"The extent of maternity denning in the multi-year pack ice of the Beaufort Sea ..."

RESPONSE:

This is irrelevant to the Arctic Gas project. There will be no impact on maternal den sites on pack ice.

Further research on the polar bear is not required with respect to the Arctic Gas project.

No. 31

"There should be strict enforcement of all anti-littering and waste control procedures and no garbage or waste should be disposed of except in authorized areas and according to authorized procedures. A programme of constant surveillance during the construction period and an active programme to reduce garbage and review garbage disposal techniques should be instituted. Because of the unique wilderness areas to be traversed increased research and management of garbage and waste disposal beyond that normally required in construction of this type should be implemented."

No. 32

"All areas of camp activity and in particular areas involving food or garbage disposal or any other area where there is a possibility of adverse interaction between the pipeline activities and the natural wildlife, should be fenced off so that there is no contact between the hazardous situation and the natural wildlife of the area. In addition, areas containing fuel bladders must be fenced to protect them from possible rupture by bears."

RESPONSE:

See Response to Commission Counsel, Construction Services and Activities, Solid Wastes, Camps, etc.

No. 34

"Electrical monitoring devices should be used at compressor stations and other locations to detect bears and other animals that may enter and potentially cause damage or disrupt activities."

RESPONSE:

Other means of detection may be more appropriate; and this decision should be left for final design, and approval by the Agency.

ALTERNATIVE RECOMMENDATION:

A detection system approved by the Agency should be installed at appropriate locations to detect the presence of intruders (human and other).

Marine Mammals (Whales and Seals)

Recommendations

No. 1

"Because there is little time to gather precise information on human activity and whale disturbance, a sanctuary should be created in the western part of the outer Mackenzie Delta which would be totally free from all disturbance including hunting, construction of artificial islands and of a gas pipeline... (Sergeant, 122:18494)."

RESPONSE:

This is clearly unacceptable to Arctic Gas, and, presumably also, to native hunters. There is no evidence to date that indicates the whales have been affected by activities in Mackenzie Bay or that they will be affected by Arctic Gas' crossing of Shallow Bay.

No. 8

"No industrial activity should be allowed at key seal feeding areas between mid-October and mid-May.

RESPONSE:

Should be revised to "No industrial activities should be allowed to interfere with feeding seals or unduly damage seal feeding areas."

Further Studies

RESPONSE:

The further studies as described are not required on seals with respect to the Arctic Gas project, which will not have a significant impact on seals. During final design, Arctic Gas will inspect all potential wharf, staging and stockpile sites along the coast to ensure that seals and other marine species are not affected. With respect to whales, sufficient studies have been conducted on their movements and annual harvest. The whales will be monitored during construction and should any evidence appear that indicates the whales are being detrimentally affected, then pipeline activities will cease.

Birds

Recommendations

No. 1

"The evidence that ornithologists have presented at this Inquiry has focused on the importance of the Yukon North Slope, the Mackenzie Delta and the Old Crow Flats as habitat for birds. For this reason, and for various other environmental reasons, the Canadian Arctic Resources Committee is recommending that no pipeline route be approved across the Mackenzie Delta or through the northern Yukon north of the Porcupine River."

RESPONSE:

The evidence has also shown that, with proper mitigative measures, there will be no undue impact on bird life in these areas with the construction and operation of the pipeline.

No. 2

"If a pipeline is ordered to be built along the Yukon North Slope, steps needed to protect bird habitat include:

- i. The Shingle Point borrow site should be re-examined and re-located away from its present location in critical bird habitat. (81:11963-64)
- ii. In no instances are the sandbars in the Mackenzie River and the existing spits, bars and barrier beaches on the North Slope to be used as borrow sources. (80:11902-03)
- iii. A detailed manual for field personnel should be prepared de-

scribing the staging and moulting of migratory birds along the North Slope coast and the procedures to be followed to avoid disturbance, including times when no activity in the area is to be allowed. (Hurd, 41:5332-3)

iv. Unregulated traffic within the coastal lagoons of the North Slope must not be permitted so as to protect the staging and nesting areas. (McTaggart-Cowan, 48:6391-92)

v. That at no time would a highway or other permanent road access be permitted on the North Slope and into the Mackenzie Delta. (Gunn, 90:13654)"

RESPONSE:

- i. No need to re-examine if it must be relocated. Add "if possible" to the end.
- iii. The purpose of the detailed manual is unclear. Work during this period would be very limited and site specific. Each particular operation going on during this period should be considered separately.
- iv. How do you control "unregulated traffic"? Regulation is a government concern, if it is pursued.

No. 6

"Withdrawal of water should be approved by ornithologists and all shallow lakes significant for duck nesting be avoided." (85:12622)

RESPONSE:

Water sources should have the approval of all interested parties and not just ornithologists.

No. 7

"Construction must be restricted to the winter season after the fall migrations have been completed and prior to spring arrivals. (Gunn, 98:14866-69)"

RESPONSE:

This is impractical. It does not consider staging sites, compressor sites, airstrips, major river crossings, etc. It is certainly possible that activities may be curtailed during these periods.

No. 10

"Studies should continue to determine critical areas or particularly sensitive areas for birds. If outright avoidance of those critical areas by the pipeline route is not possible, measures should be implemented to minimize the long term impact. Ancillary facilities to the pipeline, such as air fields, compressor stations, gravel pits or staging areas, are to be re-located out of critical areas. (Gunn, 98:14866-69)"

RESPONSE:

It may not be possible to locate ancillary facilities to the pipeline out of critical areas, and as a result, certain mitigative measures will

be implemented. Delete the last sentence in the recommendation.

Waterfowl

Recommendations

No. 1

"Transportation routes should detour around such critical areas as Old Crow Flats, which must be off-limits to anyone save the native people. Also off-limits should be the critical areas of such sites as Phillips Bay, Herschel Island, Nuneluk Spit and Clarence Lagoon.

(BRS Vol. 14, p.154)"

RESPONSE:

This is too general, and should be deleted.

No. 2

"Even if the Arctic Gas Prime Route were to be ordered, the Cross Delta alternative must be rejected because of the potential danger to this critical area. Any crossing of the Mackenzie should be moved as far south as possible. (89:13419; McTaggart-Cowan, 47:6186)"

RESPONSE:

The evidence does not support that there would be measurably different impact on the Cross Delta route as compared to the circum delta route. It does show that with the mitigative measures proposed, the impact will be within acceptable limits.

No. 4

"In the event that there was international agreement to order a pipeline to be built along the Yukon North Slope then the following areas must be avoided;

- i) At Komakuk, all boat traffic should avoid Ptarmigan Bay.
- ii) At Shingle Point, all boat traffic must stay well clear of Escape Reef.
- iii) Compressor Station CA-05 at the Malcolm Delta and its associated facilities should be moved as it is within the Malcolm goose concentration area.
- iv) Compressor Station CA-06 at the west side of Shingle Point and associated facilities or borrow pits should be moved as it has been sited in the Crow-Phillips goose concentration area and is also in conflict with a cluster of rare and endangered raptor nest sites located within 5 miles.
- v) Where possible, compressor stations on the North Slope should be relocated and staging or stockpile areas be moved to areas used as part of the DEW Line as this is an area that has previously been disturbed."

RESPONSE:

Site specific recommendations such as these should not be included in Recommended Terms & Conditions. Exact station locations can be reviewed by the Agency during approval of preliminary design.

ALTERNATIVE RECOMMENDATION:

The specific location of such facilities as compressor stations, wharves, stockpile sites, etc., should be reviewed by the Agency after completion of preliminary design. The location will not be approved until appropriate environmental concerns have been considered.

No. 5

- v. "Where snow geese have been diverted from the North Slope because of construction activity and are likely to encounter construction across the Delta, construction must be closed down. This is the assumption used by the Arctic Gas consultants in their evidence and assessment of impact. (Gunn, 93:14173-74; Banfield, 95:14431)"

RESPONSE:

Rather than closing down all construction activities, only those that would adversely affect the snow geese should be stopped.

- vi. "All staging and stockpile sites along the north coast should be self-contained so as to not require regular aircraft supply. People and equipment should be brought in in the summer, by ship. Where this is not possible, strict control of aircraft flight paths, frequency and minimum elevation must be enforced. (93:14158; Gunn, 93:14159)"

RESPONSE:

To bring all people and equipment in by ship in the summer could be very restrictive. There is always need for some resupply, and with careful planning of flights, adverse environmental effects can be mitigated.

No. 6

- ii. "All aircraft overflights of ornithological sensitive areas be at a minimum altitude of 2,500 feet. (Gunn, 96:14703)"

RESPONSE:

The minimum altitude should be 2,000 ft. based on results of disturbance studies and allowing for a generous safety factor.

- iv. "Construction and other activities north of the Arctic Circle should be curtailed from May to September. Especially critical are the nesting months of June and July, along both proposed Arctic Gas routes, and on the North Slope from mid-August to mid-September when snow geese are grazing preparatory to migration. (Arctic Gas BRS Vol. 4, p. 153)"

RESPONSE:

This is too general and is unacceptable. It would, for example, stop construction of housing in Inuvik!

- xiii. "In all areas of significance to birds used for stockpiling or handling of toxic chemicals or fuels a boom be placed around

the area and wharfing and docking facilities as well as fuel handling techniques be devised so as to minimize the danger of a spill into water. (Finney, 100:15198)"

xiv. "Where fuel or toxic chemicals are to be handled the most fail safe procedures should be promoted and enforced, containment and clean-up facilities and equipment should be readily available and spill and prevention clean-up personnel should receive the necessary special training. (McTaggart-Cowan, 47:6188-89)"

RESPONSE:

Delete xiii, as the concerns and procedures are stated in xiv. The need is to ensure safe storage and handling methods, and specific methods should not be stated at this time.

xxii. "Chemical dispersants should not be used to control or regulate oil slicks in areas frequented by birds. (98:14886-87)"

RESPONSE:

There may be chemical dispersants that could be very useful. Add "unless approved by the appropriate government agency".

Fish

Page 1, para. 1

RESPONSE:

This paragraph makes the point, repeated over and over again in this submission, that we have insufficient knowledge of fish and fisheries in the Yukon and Northwest Territories to predict with confidence the effects of the construction of a gas pipeline. In fact, we would argue that there is a comparable body of detailed information describing the biology of fishes and other aspects of aquatic and marine biology. There is no pipeline, railroad, highway, or power transmission line whose route has been described as minutely. Overall, including government and industry studies of freshwater and marine environments, including studies of the pipeline itself as well as studies of associated facilities such as well sites, feeder pipelines, gas plants, etc., several million dollars have already been spent. In addition, Arctic Gas is committed to further studies during final design and to a program of detailed inspection and monitoring during and after pipeline construction. Arctic Gas believes that the enormous body of information already available indicates that, with careful mitigation, a gas pipeline can be constructed in the north without detriment to aquatic and marine habitats and fish populations.

The remainder of CARC's introduction to the fish section is a frequently inaccurate catalogue of deficiencies which they have identified. The following is a series of comments on some of their statements.

Page 3, para. 1

"More information should be gathered on ciscoes and whitefish in the streams of the Mackenzie Valley."

RESPONSE:

In streams in the Mackenzie Valley, these species are almost entirely confined to the River itself, including the Delta channels, and to a few major tributaries. These species have been studied wherever the pipeline route intersects streams in which they occur. In fact, a great deal is known of the biology of those life history phases which occur in the vicinity of the pipeline corridor. All of the available information suggests that spawning occurs far upstream of the Prime Route. Provided that upstream migration is not blocked and that downstream rearing areas are not degraded, we cannot envisage circumstances related to pipeline construction which could adversely affect these upstream spawning areas. (Is a company proposing to construct a pipeline crossing at New Westminster required to provide detailed information regarding the spawning habits of sockeye salmon at Talkla Lake a thousand miles away?) If, however, spawning areas are identified in proximity to the pipeline during final design phase, detailed studies will be undertaken and appropriate mitigative measures proposed.

Page 3, para. 3

"...there is a lack of sufficient local knowledge to protect water bodies."

RESPONSE:

A great deal of local knowledge is already available from both government and industry studies. In addition, Arctic Gas proposes to prepare an individual description and impact assessment for crossings on any

stream likely to contain fish.

Page 3, para. 4

"...the numbers of fish...may appear unimportant to a biologist but are highly significant to the native people..."

RESPONSE:

Dr. McCart has stated repeatedly that Arctic Gas should be committed to the preservation of populations as genetic entities regardless of their size or the species involved.

Page 4, para. 1

RESPONSE:

There is every likelihood that the studies of population dynamics indicated would have a greater effect on populations, through sampling, etc., than would any pipeline. Arctic Gas feels that such studies are unnecessary to the proper construction of a gas pipeline.

Page 6, para. 2

"...research has identified hundreds of locations in which Arctic char spawn..."

RESPONSE:

In fact, fewer than 20 localities have been identified in streams along the pipeline route in Canada, none of them downstream of the pipeline route.

Page 7, para. 2

"Fish spawning beds and nursery areas that have become silted over can be cleaned out but it is an expensive and time consuming effort ..."

RESPONSE:

In fact, providing that siltation is short term and not continuous over a long period, natural hydrological processes should clear whatever silt accumulates as the result of pipeline construction within one or two years.

Page 7, para. 3

RESPONSE:

Arctic Gas has no plans to remove gravel from spawning areas.

Page 7, para. 4

"Mr. Walker, who is familiar with both the south and the north part of the Yukon, stated, however, a definite preference for the Fairbanks Route..."

RESPONSE:

Arctic Gas believes that comparisons of routes must be made on an overall basis, including both Alaskan and Canadian segments. Considered in this way, it is submitted that the Arctic Gas proposal is environmentally superior to any other proposed route.

Page 8, para. 4

"Shallow Bay is literally teeming (sic) with aquatic life, moving in both directions, for a period of approximately five months."

RESPONSE:

This is incorrect and contrary to any available evidence. The only studies of fish populations in Shallow Bay in the vicinity of the pipeline route are those conducted by Arctic Gas (de Graaf and Machniak, 1976). These studies indicate that the Bay supports very few fish either as a rearing area or migration route. Apparently, most fish migrate through channels to the east or west, not in the Bay itself. Of all the channels and waterbodies within the Delta in the vicinity of the proposed pipeline route, Shallow Bay appears to be the least likely to be affected by pipeline development.

Page 10, para. 2

Re further 2 or 3 years of inventory work.

RESPONSE:

This has been covered in the Arctic Gas Final Argument for Berger (Genest, Vol. 200).

Page 10, para 2

Re studies of swimming performance of various species.

RESPONSE:

There have been various studies of the swimming performance of grayling, the species most likely to be affected in its upstream migration (e.g., MacPhee and Watts, 1972). In addition, Environment Canada funded a study of the swimming performance of species of fish from the Mackenzie Valley. This study has been completed and published.

Pages 11 and 12

More discussion on the inadequacy of data.

RESPONSE:

A great deal is already known, certainly enough, with studies to be conducted during the final design phase, to ensure that the pipeline has no major adverse effects on fish. Further, some of the suggested studies are irrelevant; e.g., the suggestions for studies of the spawning habits of fish which apparently spawn far from the pipeline route.

Page 13, para. 1 and 2

Re overwintering areas.

RESPONSE:

Arctic Gas has already conducted studies to locate overwintering areas and plans further interdisciplinary studies of winter conditions during the final design phase, prior to construction.

Approach and Timing

Recommendations

No. 2

"As much information as possible on the harvest rate should be obtained and a management scheme established. It is necessary to develop an overall plan to ensure the protection of the fishery resource. Such a plan would require an estimate of the potential yield of the entire Mackenzie Valley, a determination of the goals for the Mackenzie Valley aquatic system, be it domestic sport or commercial fishery, and establish an overall long-range plan to manage the system to achieve these goals. This type of research and planning is "environmental insurance"." (Wilimovsky, 109:16695-98).

RESPONSE:

This is properly the function of government, not of industry.

No. 3

"A Canada-wide freshwater fish management agency should be created to provide a framework for an overall fish management regime, which the area to be impacted by a gas pipeline is a part." (Wilimovsky, 109:16700)

RESPONSE:

This is properly the function of government, not of industry.

No. 5

"Interdisciplinary discussions must be held early on in the planning process between environmental consultants concerned with specific environmental concerns. Dr. Gunn, the ornithologist, advised that he had not actively consulted with Dr. McCart to determine the characteristics in lakes that would govern recommendations to Arctic Gas concerning water removal, for example. There thus remains the possibility of conflict between the waterfowl as opposed to fish even in advance of potential conflicts between the environmentalist and engineering consultants." (Gunn, 93:14134-35)

RESPONSE:

Interdisciplinary discussions have been held often over the years and will continue. With respect to water withdrawal, no decisions have yet been made concerning the localities from which water will be withdrawn. When a selection of feasible sources has been made, they will be examined in the field by a multidisciplinary team which will determine if and how water can be withdrawn to obviate potentially adverse environmental effects.

No. 7

"Wherever there is a domestic fishing site close to the pipeline alignment, the alignment and all related facilities should be moved as far as possible from that site." (McCart, 103:14084)

RESPONSE:

Providing that there are no other environmental or engineering constraints. Change "possible" to "necessary".

Toxic Chemicals and Methanol

No. 9

"The Canadian Arctic Resources Committee recommends that there be no release to the environment."

RESPONSE:

Arctic Gas believes, based on research data, that low concentrations of methanol (less than 1%) can be safely released. Other toxic chemicals will be stored and handled to reduce the feasibility of their entering the environment.

No. 11

"Stockpile sites, wharves, and any other facilities for the handling or storage of toxic chemicals are not to be located near fish camps or other areas or local subsistence fishery. Impact on local fisheries must be one of the factors to be considered in final location. Discussion with local inhabitants and the people dependent on the fishery must precede any decision." (Hemstock, 93:14086-88)

RESPONSE:

Native fisheries will be taken into account wherever possible, but in some cases (e.g., Stokes Point), it may not be possible to entirely avoid such areas.

Water Sources

The recommendations on water sources are very repetitive. Recommendation 17, by itself, is probably enough. A few others could be included, e.g. 13, 18 (if modified), 19, 21, 22 (if modified).

Recommendation

No. 12

"Water should not be taken out of rivers on the North Slope of the Yukon." (McCart, 84:12608)

RESPONSE:

Unnecessarily restrictive. If properly done, water can be safely removed without harmful effects to fish.

No. 15

"In general, where there is a possibility that de-watering an area could result, such as Vermilion Creek downstream, the majority of the water should be withdrawn from the Mackenzie River." (McCart, 85A:12760-61)

RESPONSE:

Acceptable if restricted to portions of the route close to the Mackenzie River.

No. 18

"Water should be taken only from those lakes that have no fish pop-

ulation or which are so deep and have such a large volume of water that withdrawal will only be an insignificant portion of the volume. Water should be taken from no lake which is small in volume or where the natural oxygen levels are low." (McCart, 84:12607)

RESPONSE:

Acceptable if the last sentence is omitted. These are often the very lakes without fish populations.

No. 20

"Water should not be taken from one water body and discharged to another without agreement that acceptable standards will be met with respect to water quality, effects of discharged water and effects on water body from which the water is removed. If water is removed, it should be taken only from areas downstream of spawning and overwintering areas. The amount of water removed should not exceed the minimum winter discharge rate at the spawning or overwintering location." (McCart, 85A:12762-63)

RESPONSE:

The last sentence is confusing. It possibly means that water removed should not reduce the discharge rate below the minimum necessary for spawning and overwintering.

No. 25

"Water should not be taken from the River Between Two Mountains. If

water is to be taken from the springs in the river this should only be done after a detailed investigation of the impact on fish populations."
(McCart, 85A:12745-6)

RESPONSE:

Needs to be reworded. "If water is to be taken from the River Between Two Mountains or from the springs in the river, this should only be done after a detailed investigation..."

Blasting

No. 27

"In rivers with no running water in winter, whether surface or subsurface, blasting shall take place during the winter months when the crossing is dry. Where blasting is used, mitigative measures must also consider the increased silt loads that occur in spring after winter blasting." (McCart, 96:14688)

RESPONSE:

The first sentence should be modified by adding "wherever possible".

The Company has agreed that blasting will not be carried out without prior approval of the Agency. As described in the response to "Implementation" in the CARC Argument, and in "Project Regulation" in the Responses to Commission Counsel Recommendations, the Agency has environ-

mental, sociological, and engineering responsibilities. This recommendation is therefore not required.

No. 28

"Blasting in the riverbed of the Great Bear River must be done in such a way as to protect the grayling migration and other fish resources.

RESPONSE:

The Company has agreed that blasting will not be carried out without prior approval of the Agency. As described in the response to "Implementation" in the CARC Argument, and in "Project Regulation" in the Responses to Commission Counsel Recommendations, the Agency has environmental, sociological, and engineering responsibilities. This recommendation is therefore not required.

Gravel Removal

No. 31

"No gravel extraction should occur below the design flood high water level nor closer than 300 feet from the wetted perimeter of streams."
(Stein, 105:15987)

RESPONSE:

If gravel is removed as proposed by Arctic Gas, there is no reason why gravel cannot be removed below the design high water level provided that borrow operations do not occur in the active, flowing channel. Also, we do not feel that arbitrary distances (300 ft) are useful mitigative measures,

but rather must be assessed on a site-specific basis.

No. 32

"Gravel should not be removed from the active flood plain of streams, especially in areas where bank erosion is possible." (McCart, 85:12669-70 and 12673; 85:12668)

RESPONSE:

This is unacceptable. (See #31 above).

No. 33

"No phase of gravel mining operations should commence before the end of August to ensure that the Arctic char have passed through the crossing areas to their overwintering areas downstream of any mining operations." (McCart, 85:12636-36)

RESPONSE:

This applies to the North Slope and western Delta only. Many of the gravel removal recommendations are redundant. Only 29, 30, and 35 are necessary.

Channelling, etc.

No. 36

"No berms shall be placed up against an active channel nor shall channels be used in braided streams to divert flows around working areas. A buffer zone, suitable for the particular circumstances,

shall be left between the upper channel and the working area."

(McCart, 81:12129-30)

RESPONSE:

To restrictive. There is no objection to berms if they are necessary to minimize sedimentation.

No. 39

"Ice bridges shall not be constructed using foreign materials such as logs which could then settle into the streams as a result of constant use by heavy construction equipment." (McCart, 93:14067)

RESPONSE:

Logs are acceptable if removed before breakup. We do, however, object to smaller materials (dirt, stones, branches, etc.).

No. 46

"Fish use the natural and uneven stream bottom to aid in their passage upstream. Baffle culverts and elliptical culverts, which sit below the bed of the river and allow the natural sub-strata to be maintained, each have benefits yet, as demonstrated at the Ringling River crossing, each must be selected on a site specific basis depending on the particular habitat required to be protected." (McCart, 92:13988-91)

RESPONSE:

Baffle culverts are not recommended, since they may result in icing problems.

No. 53

"Fish culverts, that is a culvert placed at a different location to allow better movement of fish in addition to the culvert designed to take the mainstream flow, are to be employed where possible."

(Hayden, 100:15260-61)

RESPONSE:

We are not aware that these have been tested and found satisfactory under arctic conditions.

No. 54

"Culverts are to be used at the end of a berm protruding into a flowing stream so as to reduce velocity at the end of the berm which might be a problem to fish migration." (McCart, 90:13743-46)

RESPONSE:

Only if, after further study, culverts are found to be the best method. Modifications to the end of the berm may be more satisfactory. In any case, this has only been suggested for the Great Bear River berm, and it is possible that if the crossing location is changed, no berm will be required.

Again, redundancy, especially with respect to culverts. Only Recommendation 44 is essential; all the others follow from this.

Siltation

No. 60

"Benthic invertebrate populations are far more sensitive than fish in general and, irrespective of the tolerance level of fish, precautionary measures sufficient to protect benthic invertebrates may be required in specific locations. Locations with important benthic invertebrate populations would be identified and more stringent protective measures enforced in those areas." (McCart, 93:14100)

RESPONSE:

The statement should be that benthic invertebrate communities are more sensitive than fish communities to changes in their environment. Therefore, parameters describing benthic community structure (e.g., equitability and diversity indices) are sensitive indicators of changes in environment (e.g., through organic pollution). This works two ways, however, these communities respond readily to "improvements" in habitats as well as degradation. There is no evidence that there are any endangered benthic invertebrate populations along the route or that normal communities will not be reconstituted once habitats return to normal.

No. 61

"In water courses, such as the Great Bear River, where the berms or other constrictions into the flow are to be constructed, measure to ensure that sedimentation does not result from construction of the berm are to be implemented. This includes, in particular, construction

at times of the year where sedimentation is not a serious problem and use of techniques and materials that will reduce sedimentation danger." (McCart, 90:13756)

RESPONSE:

Some sedimentation will always occur. Statement should be "... measures should be implemented to ensure that sedimentation is kept as low as possible ..."

No. 62

"Sedimentation may occur through erosion of the right of way as well as activity within the river flow itself. Such sedimentation may reduce the productivity of the invertebrate food sources that maintain the fries, juvenile and adult life stages of fish populations. While winter months are particularly sensitive because they are normally times of very low sedimentation, this potential danger applies to all year round, particularly when considering the Mackenzie Delta which is utilized at all times of the year."

RESPONSE:

Pipeline construction will not significantly increase sediment levels in the Delta during the summer months.

No. 64

"Stream gravels may contain the incubating eggs of fall spawning species, including the whitefish, ciscos, inconnu and Arctic char.

Along the Mackenzie Valley the location of these critical areas is not known with sufficient precision to determine whether siltation problems created at river crossings may cause difficulties. Identification of these sites and accurate information on potential silt load must be available before a pipeline crossing is approved."

(Stein, 103:15809-10)

RESPONSE:

It is only necessary to know the location of spawning sites likely to be affected by pipeline construction; e.g., within a few miles downstream.

No. 65

"Further research be conducted to provide baseline information on the nature of the siltation, the rate of its oxidation, current flow, particle size and expected time of silt discharge, both in the laboratory and in field controlled experiments, to quantify the expected impact of siltation before approval for a site crossing is granted." (Wilimovsky, 109:16693-94)

RESPONSE:

The problem of establishing quantitative standards for sedimentation is extremely complex, and it will be many years, if ever, before sufficient data are available to develop realistic and generally applicable standards. Arctic Gas' approach is to do whatever is necessary to keep sediment loads to a minimum. The technology to do this is already avail-

able. The construction of the pipeline will be monitored in detail.

River Crossings

No. 69

"In considering the impact of river crossings on fish it is important to remember that some rivers may not contain sufficient numbers of fish yet are essential because they supply various fish food organisms to the whole Mackenzie Valley system. Even in those rivers and creeks without significant fish populations, special river crossing techniques are required." (Hayden, 100:15292-94)

RESPONSE:

The statement seems to suggest that small streams without significant fish populations are producers of invertebrates which are carried far downstream to feed fish in the major rivers. If so, this is nonsense. Even in small streams, few invertebrates are able to move downstream through pools, from one riffle area to the next, without being taken by predators. CARC is apparently suggesting that even the most insignificant watercourses require special, site-specific evaluation and approval. (see Recommendation 71.) In general, streams without significant populations of fish at any time of year are dry during the winter construction and present no problems requiring special crossing techniques.

No. 70

"Large winter river crossings require particular information and attention. Data as to the flow rates and flow patterns, sediment

characteristics, water chemistry, especially dissolved oxygen, and toxic analysis, must be conducted. In summer time, it is necessary to know the eating habits of the different species spawning in the area, identification of all critical habitats and water flow information." (Stein, Steigenberger, Walker; 105:106099-102)

RESPONSE:

Why is it necessary to know eating habits?

No. 71

"For the 400 odd streams that are not going to be studied on a site specific basis we should have a complete habitat analysis for even these minor stream crossings, in particular, identification of overwintering and spawning areas for fall spawning species." (Stein, Steigenberger, Walker; 105:16099-102)

RESPONSE:

Any stream large enough to harbour overwintering and fall spawning fish is large enough to require a specific crossing analysis. This will identify any important habitats likely to be adversely affected by stream crossings.

No. 74

"On the north slope, particularly on those rivers and streams that freeze to the bottom in winter, special attention must be directed towards open water areas and overwintering areas such as groundwater

fed stream sections and the estuaries and lowe limits of coastal streams." (Steigenberger, 103:15762)

RESPONSE:

If the streams freeze to the bottom, there are no open water and overwintering areas.

No. 75

"In rivers demonstrated to be sensitive spawning and nursery areas for spring spawning species, such as grayling, no construction should be allowed during the period May until November and a crossing, if required, must be entirely constructed during the winter season. The Hare Indian River and the Donelly River are two examples of such rivers." (Rowe, C181824, 42:5510-11)

RESPONSE:

This is unreasonable. There is no reason why the crossing could not take place if the spawning and nursery areas are upstream of the crossing.

No. 76

"In situations where a berm is required throughout the construction season and where it does not cause siltation or interfere with migration, it should remain in the river throughout the summer period and then be removed the following winter construction season. In all cases, berm removal shall not take place during the spring spawning

or migration periods." (McCart, 90:13743)

RESPONSE:

Dr. McCart didn't say this. In fact, where streams flow continuously (e.g. Great Bear), it would be preferable for berm removal to occur during the spring freshet when silt loads are naturally high. Winter removal would only be preferred where the stream is frozen.

Routing

No. 78

"With respect to the Mackenzie Valley portion of the proposed pipeline routes, there remains insufficient data and essential information on critical areas and potential impact. As discussed in detail under the section "Further Studies" further research on routing in the Mackenzie Valley must be undertaken before a pipeline route is approved."

RESPONSE:

Arctic Gas has stated that some additional site-specific work is necessary during final design phase, but not the 2 to 3 years suggested by Stein. However, there is no requirement for additional work before a pipeline route can be approved.

No. 79

"Conclusions of the impact on the Beaufort Sea - Mackenzie Delta area are complicated by the route change to the Cross Delta alternative

and the cumulative impact of the gathering facilities, enhanced oil exploration and other ancillary activities brought on by increased activity in the area and further research is required. Conclusions to date are that the estuaries and the Beaufort Sea coast are highly protective and are critical areas in the summer months. Further studies are required to determine the population size, composition and movement of fish along the Beaufort Sea/Mackenzie Delta area. Such studies would concentrate in particular on the placing and construction of wharves so as to protect the fish resource, the implementation of special precautions and clean up techniques to protect against toxic spills into coastal waters." (Steigenberger, 103:15768)

RESPONSE:

Although site-specific studies at coastal staging sites are planned during the final design phase, sufficient information is already available to provide a general assessment of fish populations along the coast.

No. 80

"Rivers capable of supporting overwintering fish populations are to receive special protection, discussed elsewhere. Along the north shore routes this would include protection of Craig and Fish creeks which have high oxygen readings and the Spring and Crow Rivers which, though they have low oxygen readings, still appear to be able to support some Arctic fish species." (Steigenberger, 103:15763-64)

RESPONSE:

No one has yet located overwintering fish in Craig, Spring and Crow rivers, but further investigations are planned for final design. The locations of fish in Fish Creek are well known and will be protected.

No. 82

"Preliminary studies indicate that large rivers such as the Firth River and Babbage River may contain isolated and/or discontinuous pockets of water that is of acceptable quality to afford an overwintering habitat for fish and invertebrates. Sampling of this area for the presence of fish and food organisms is to be conducted before final route selection." (Steigenberger, 103:15764-65)

RESPONSE:

What area, where there are isolated pockets of water? In any event, arctic stream invertebrates are generally capable of surviving the winter in a frozen state and populations are unlikely to be affected if pockets of water are reduced.

No. 84

"In considering the critical areas along the Interior Route, the Porcupine River and its several tributaries is undoubtedly of concern because of the limited area available for overwintering fish populations. The preservation of such areas along with pathways for fish migration, principally in the fall and spring months, are essential." (Steigenberger, 103:15766)

RESPONSE:

The entire Porcupine River has a significant discharge during the winter. It is unrealistic to state that overwintering areas are limited. In addition, the pipeline does not actually cross this river, only its tributaries, most of which are frozen at the crossing sites. At those with winter flow, winter studies will precede construction to ensure that overwintering fish are not unduly harmed.

No. 86

"With respect to the Firth River, information indicates that the majority of the spawning takes place 60 miles upstream in the area of Joe Creek. Though the river is frozen to the bottom, further research is required to determine if there is percolation of water through the gravel and establish that proposed construction techniques and the frost bulb during operation would not interfere with this percolation essential for the maintenance of the spawning and overwintering areas."

RESPONSE:

Arctic Gas studies (Arctic Gas Biological Report Series, Vol. 30, Ch. 3) indicate that most spawning takes place even further upstream near the Alaska border. Studies are being done on northern rivers to determine sub-bottom flow. Flow through gravels under the pipeline will be maintained.

No. 87

"Pipeline routing shall not be allowed to cross through major spawning

areas. Even areas currently defined only as probable spawning areas should not be crossed until their existence has been investigated and, if necessary, protective measures instituted. Probable spawning areas are located close to the proposed crossing sites in the Firth, Crow, Trail, Walking and Blow Rivers, Deep Creek and Rapid Creek, along the Prime Route." (Steigenberger, 103:15773)

RESPONSE:

Arctic Gas is unaware of any spawning areas near the pipeline crossing in the Firth. The others listed are potential spawning areas for grayling only. It should be noted that unlike Arctic char and salmon, grayling are not typically mass spawners. Rather, they generally spawn as individual pairs distributed over long segments of stream. A localized disturbance will normally affect only a portion of the total spawning population. In any case, Arctic Gas plans no activities in streams during the 3 to 4 weeks when grayling eggs and alevins occupy stream substrates.

No. 89

"Definitive information is lacking on each river proposed to be crossed, but such information is required. Attached as an appendix are preliminary detailed recommendations presented by the witness, Steigenberger, with respect to each proposed crossing along the north slope of the Yukon. These particular concerns and recommendations are to be considered and implemented to ensure the protection of the fish resources."

RESPONSE:

These recommendations (in the Appendix) are available in Stein et al., 1975, which Arctic Gas has had available for many months, and have been incorporated into the body of information which will be used in preparing individual stream crossing evaluations during the final design phase.

Further Research

No. 99

"Identification of critical areas in the Mackenzie Valley is "far from complete". Additional work must be done on sedimentation and its effects, toxicity as it relates to northern species, northern organisms and the northern environment. It will take in the neighbourhood of 2 to 3 years, given the appropriate level of funding and manpower, to carry out the studies necessary before pipeline construction begins." (Stein, 104:15850 and 15867-69)

RESPONSE:

See Arctic Gas final argument (201:31725 to 31730).

No. 100

"Knowledge gaps still exist in the life history details for adults and juveniles of several species. The location of spawning areas in the headwaters of tributaries remains largely unknown. Additional data must be collected on spawning habits and juvenile life histories

if these critical stages are to be protected during pipeline construction. It is imperative that these information gaps be filled prior to approval and construction." (91:13913-14)

RESPONSE:

As previously indicated, there is no reason to conduct detailed studies in areas far removed from any conceivable effect of the pipeline.

No. 104

"The spawning beds and overwintering areas of species such as the whitefish, inconnu, herring (in the Delta area) and the loche/burbot need to be located." (Hayden, 100:15217-18)

No. 105

"There are knowledge gaps for certain species, for instance the crisco and whitefish in some of the streams of the Mackenzie River Valley and this information should be obtained and assessed before final design is approved." (McCart, 91:13913-14)

RESPONSE:

Only if they are close enough to the pipeline route that there is some likelihood of adverse effects.

No. 106

"Most of the major estuaries along the north slope have been studied in summer. However, estuarine environments should be surveyed,

especially in the winter months, to ascertain their potential carrying capacity for overwintering fish." (Steigenberger, 103:15766)

RESPONSE:

Only those in the vicinity of major facilities, which will be accomplished during final design.

No. 107

"Lack of definitive information on each river proposed to be crossed during pipeline development is a common occurrence in most research reports. More information on scour depths, sedimentation levels, gravel resources, winter sub-gravel water flows and seasonal discharge of rivers and groundwater areas are required. In addition, it would be useful to have more information on the significance that all open water areas have in the life history stages of the fishery and invertebrate resources and the influence they have on overwintering, spawning and migration. With this further research fisheries biologists would be in a better position to evaluate various recommendations so that they can be clarified, justified and implemented to protect the fisheries resource." (Steigenberger, 103:15787-88)

RESPONSE:

A great deal is known and information is still being gathered. Further studies on sensitive streams will be carried out in 1977.

No. 110

"Because the expectation is that sediment and erosion will keep the water murky for 8 months following construction of the berm in the Great Bear River the impact of this turbidity on fish must be specifically studied." (McCart, 91:13753-54)

RESPONSE:

The eight-month period is not based on anything Dr. McCart said, nor is it representative of experience elsewhere on pipeline crossings.

No. 112

"There should be a further program to collect data in areas where knowledge is incomplete to see if fish are spawning, migrating or overwintering in those areas." (Stein, 105:16055-56)

RESPONSE:

These studies are part of the site-specific programs that will be implemented during final design.

No. 113

"There should be an examination and identification of all critical areas downstream of river crossings." (90:13756)

RESPONSE:

This is necessary only if such areas are within the range of

likely effects.

No. 114

"If summer river crossings are to be allowed at all, research is needed to indicate the migration routes and times for the various species to be passing the crossing. If dredging or blasting is to be used, studies are to indicate how these fish runs will react to such activity. The disposition of silt, both from the trenching itself and from the spoil pile below and the impact of the berm, both with respect to hydrological effects (water velocity) and siltation need be examined." (Sten, Steigenberger, Walker; 105:16100-02)

RESPONSE:

Such studies have been conducted and more are planned for the Delta and Great Bear River.

No. 119

"A survey should be taken at short time intervals for the major streams and lakes likely to be impacted. Instead of working on an inventory such a survey would gather information on stock size, their sensitivity and variability. Having conducted specific research on areas of critical concern, the more general research should be in the nature of an inventory."

RESPONSE:

Much such information is already available and more will become available during final design.

No. 120

"There is concern about overwintering areas that are not readily visible and their existence may not be known unless examination of the total downstream is undertaken. Rather than concentrating on a boring program at the specific crossing sites, one must conduct a general survey down the entire downstream portion to see if particular sensitive or critical areas are encountered. Once identified, these areas must be studied to determine their significance and then recommendations made on how negative impact can meet acceptable standards." (Stein, 105:16078-79)

RESPONSE:

Such studies will be carried out over a reasonable distance downstream from river crossings during final design.

Recommended Safeguards

Recommendations

No. 2

"Plans for construction near all water bodies should be submitted to Approving Authority for approval at least 1 year before construction. The plans should include the pipeline design at proposed crossing sites as well as the proposed construction techniques and schedules."

RESPONSE:

"One year" is an unrealistically long time.

No. 3

"All drawings and instructions for construction should have a fisheries protection clause written on them so that contractors know that departures from the plan which would affect fish must be approved by Approving Authority."

RESPONSE:

"Some" drawings may require such a clause if specified by the Agency.

No. 16

"Gravel removal should not be allowed near any water body or from any stream bed without a permit. Gravel might be removed from the flood areas of certain streams or rivers, but not from below the existing water level outside the main channel. All areas of gravel removal must be graded so that they would not trap fish when the water level recedes after periods of high water."

RESPONSE:

The first and last sentences are acceptable. See Response to Commission Counsel, Construction Services and Activities, Borrow Operations, Recommendation #18.

IMPLEMENTATION:

See Arctic Gas Final Argument (Genest, Vol. 200) and Response to Commission Counsel, Project Regulations.

Arctic Gas agrees with the concept of a single regulatory agency. Arctic Gas agrees it necessary that the single regulatory agency direct its attention entirely to the pipeline project. This assignment is large and complex, and any detraction from the concentration on that task would be detrimental to the best interests of the Government and the pipeline. The procedures they put in place should be applicable only to the pipeline activity.

Rather than have the proven construction regulation and control functions of the National Energy Board included as part of the function of the single regulatory agency, Arctic Gas feels the NEB should have its traditional jurisdiction of the technical, socio-economic and environmental factors of pipeline developments expanded where necessary so that it will be the single regulatory agency to administer all regulations and stipulations that apply to the pipeline project in the Northwest and Yukon Territories, as it is South of the 60th parallel.

The single Agency should incorporate the environmental, social and local economic controls on the project on an equal footing and engineering controls. There should be social, economic, environmental and engineering considerations brought to bear at each stage of the Agency's control activities.

To adequately discharge its mandate, the Agency must engage in the following activities:

Preliminary Design Review - this function must be conducted at an early stage so that changes required by the Agency can be included by the Company and reflected in the Company's final design, construction plans and specifications. The preliminary design review stage is the appropriate point at which the social and environmental interests of native people and northerners should be introduced. Input during this stage will ensure that their interests are reflected in the final design and construction plans.

Final Design Review - this function will be accomplished as final design of the project segments is completed by the Company. Changes required by the Agency would result in final design modifications.

Leave to Construct - this function will consist of the granting of leave to construct the project segments following final design review above.

Surveillance of Construction Activities - this is the traditional function of the regulatory agency to assure the adequacy of the Company's inspection procedures.

The regulatory Agency through its surveillance of project activities conducts a continuing monitoring program to ensure performance to the Government requirements. There is no need for a monitoring group comprised of third parties. Such activity would only lead to the disruption of the project and the incurrence of very large additional costs.

The government should not appoint an independent public auditor group. The Inquiry has heard much evidence about groups of this kind particularly as they have functioned in the Alaskan experience. It is submitted that such groups have proven to be largely ineffective in being able to monitor large construction projects on a regular basis and even more ineffective in effecting any changes in construction activities. The expenditure of funds on such an organization therefore seem unjustified, and the fiction that the public interest is being protected by the existence of such a group seems potentially harmful.

It is recommended that the costs of the Agency be borne by the Government. This is consistent with past and current practice.

The Agency should assure that the company maintains a monitoring program to gather specific data during construction for use following construction to assess environmental impacts of the regulated activities. In this way any regulations found to be inadequate to protect the social or natural environment can be identified and modified.

COMMENTS ON THE SUBMISSION OF

COPE - ITC

GENERAL

The following responses are made to the recommendations contained in the document entitled "COPE-ITC Submissions" which were submitted to the Inquiry on November 5, 1976.

The Arctic Gas responses to the submissions made under the headings "Introduction", "Land Use", and "Legal Claim" are included in those portions of its final argument which can be found at T:200 and 201 - 31635 to 31721-2.

The first half of this part of the submission consists of comments upon the existing administration of the land use regulations made pursuant to the Territorial Lands Act and lists a number of recommendations in that regard. Arctic Gas feels these are comments which are directed at government.

With respect to the discussion on "Mackenzie Valley Pipeline Authority: A Model", Arctic Gas has given its views to the Inquiry on the desirability of a single regulatory agency, the timing of its establishment, the scope of its jurisdiction, the mechanics of involvement by northern residents and the Territorial Government in the single agency, the funding and staffing of the agency, the approval and inspection functions of the agency and other matters relevant to this question. Reference should be made to the following Arctic Gas submissions:

- (a) Final argument - T:200 - 31699 to 31707, which referred to the Section H "Regulation" of the CAGPL outline of its argument filed with the Inquiry on November 8, 1976; and
- (b) The Responses to Commission Counsel's submissions on "Project Regulation".

The following are two specific responses to recommendations made in this section:

2. "...break the present pattern of "reactive research", i.e. baseline research done only in response to specific project proposals on an unrealistically short time scale;..."

RESPONSE:

The research Arctic Gas has conducted to date is of a very broad base (baseline studies) and project oriented work (disturbance studies). This research has not been conducted on "an unrealistically short time scale" but has been over a sufficient time to properly identify the natural variations. It should be noted that the IBP (an international group of scientists) conducted work to define the functioning of entire Arctic ecosystems in 5 years. The Arctic Gas studies have already extended over a longer period of time and there are still several years before the earliest date when construction could begin during which time studies will continue.

Page 34, "Wildlife Research"

3. "...develop a management plan and population monitoring system for locally exploited populations of fish, marine mammals, large game and migratory birds."

RESPONSE:

The matter of game management is properly a government responsibility but, as indicated in the previous response, the monitoring of populations by Arctic Gas has been underway for several years.

Generally speaking, Arctic Gas has described its position on routing and the corridor concept in its evidence and final argument presented to the Inquiry. (See final argument T:200 - 31708 to 31714 and T:201 - 31731 to 31780.)

The following paragraphs deal with several specific recommendations made in this section.

Page 47, "Snow Roads"

"Proponents of both pipelines have inadequately dealt with the problem of snow roads. Since the impact of a successful snow road should be considerably less than that of a permanent road, the impact of the pipelines proposed to be built by applicants before this Inquiry is dependent upon them being built from an adequate snow road.

Therefore, prior to any permit being issued, the applicant must prove that:

1. snow roads can be built without degrading underlying vegetation;
2. snow roads can be built and maintained to standards of depth and hardness adequate to support heavy vehicles that are required in pipeline construction;
3. snowfall, snow manufacturing, snow harvest, and formation of ice will provide enough material to construct a snow road without adverse impacts on the environment."

RESPONSE:

Arctic Gas is of the view that it has demonstrated to the Inquiry that the required snow road construction is feasible. However, we agree that Arctic Gas must demonstrate that the three tests mentioned above can be met as part of the final design submission rather than prior to issuance of a permit. This response has assumed that the word "permit" used in the suggested recommendation means the certificate for which application has been made to the National Energy Board.

ALTERNATIVE RECOMMENDATION:

Snow Roads: as part of its final design submission Arctic Gas must show that:

1. snow roads can be built without adverse impact to underlying vegetation;
2. snow roads can be built and maintained to standards of depth and hardness adequate to support heavy vehicles that are required in pipeline construction;
3. snowfall, snow manufacturing, snow harvest, and formation of ice will provide enough material to construct a snow road without adverse impacts on the environment.

Page 48, "Erosion"

"Erosion must be minimized by avoiding sensitive areas, by the timing of construction and by using appropriate construction techniques. Companies must prove that they can stabilize disturbed areas, prevent run-off from channelling across or along the right-of-way, and control

thermal erosion."

RESPONSE:

Arctic Gas has told the Inquiry that it has as one of its criteria of drainage and erosion control the criterion that natural surface drainage will be maintained. It is in the best interest of Arctic Gas to prevent channelization along the right-of-way. Final designs of drainage and erosion control measures will be submitted to the Agency for review.

ALTERNATIVE RECOMMENDATION:

The Company's drainage and erosion control designs, site plans and construction plans shall be subject to approval by the Agency at the final design stage.

Page 48, "Terrain and Drainage"

"Surface and subsurface drainage across the pipe must be assured prior to an application being approved.

The applicant must show he is capable of stabilizing thaw slopes and avoiding terrain damage beyond the right-of-way.

If disturbance to terrain or mitigative procedures occurs by a third party after the pipeline is built, then the permittee should be responsible for repair."

RESPONSE:

Arctic Gas agrees with the intent of the first two paragraphs of this recommendation. Designs for stabilization of slopes and maintenance of surface and sub-surface drainage will be submitted for review by the Agency. Arctic Gas should not be held responsible for damage to control devices by third parties following completion of the pipeline.

ALTERNATIVE RECOMMENDATION:

Measures to maintain surface and subsurface drainage shall be submitted to the Agency for approval. Slope stabilization plans will be submitted for review by the Agency.

Page 48, "Gravel Mining"

"Prior to granting a permit for a right-of-way, the Federal Government in consultation with the communities must reserve gravel deposits near each community in excess of projected community needs. A priority system for use of gravel resources must be developed and implemented by the Federal Government and the communities in concert. Any pipeline company or other industrial user with a gravel requirement which appears to conflict with community needs must use other deposits either further from the community or ones of lower grade material. Gravel pit development plans must include:

1. an assessment of the quantity and grade of material in the area;
2. an indication of the amount of each grade that the company intends to use;

3. rehabilitation techniques planned including spoil disposal, drainage and re-vegetation;
4. any other uses proposed for the pit after gravel removal has been completed, e.g. sanitary land fill;
5. a site specific environmental assessment of the operation, including for appropriate sites: proximity of fish spawning areas, feeding nursery, and overwintering areas, times of fish migration, size and importance of fish population, domestic or sports fishery involved, bird breeding and staging areas, mammal winter ranges;
6. estimates of competing requirements from communities and/or other users.

Gravel must not be mined within two miles of a raptor nest except prior to March and after August. Rock mining for aggregate must never be done within two miles of known raptor sites (it is important to realize that nest sites which are not used for one or more years have not necessarily been abandoned. Even though species such as rough-legged hawks and golden eagles are not considered endangered, their nests and the nests of ravens may be used in other years by falcons. (White, C.M. and T.J. Cade, 1971. Cliff Nesting Raptors and Ravens along the Colville River in Arctic Alaska. Living Bird. X: 107-150.)"

"Gravel must not be mined within two miles of "traditional" dens of

arctic foxes unless mining is done during nondenning periods. If gravel is to be mined in a fox denning area, dens must be located and marked in the fall, and the mining operation must stay at least one-quarter mile from all den sites, used or unused...

If the permittee wishes to mine gravel on flood plains, it is incumbent on him to demonstrate by studying and documenting actual operations that the environmental effects of such mining will be equal to or less than the effects of mining upland areas. We do not think this has been done, and have expressed concern about operations on the Sagiunirktok River.

Gravel pits shall be restored and/or revegetated to a stable condition when mining is complete."

RESPONSE:

It is anticipated that the Agency will have detailed stipulations regarding the extraction of borrow materials. Any borrow pit development plan will be in accord with the government stipulations existing at the time and may include the first five specific points outlined above. Dealing with point number 6 Arctic Gas has indicated to the Inquiry that it recognizes that its borrow extraction plans will have to reflect the competing requirements from local communities and other users. All plans for the extraction of borrow will be prepared as part of the final design process.

ALTERNATIVE RECOMMENDATION:

Borrow will be extracted in accord with government stipulations existing at the time. Borrow pit development plans will be submitted for approval by the Agency.

Page 51, "Water Quality"

"Standards for water quality must be developed prior to the granting of a permit."

RESPONSE:

The establishment of water quality standards is a matter to be considered by government.

Page 51, "Toxic Compounds"

"Lists of toxic fluids and chemicals to be used on the project and all possible alternatives must be available to the pipeline Authority before construction begins and before permits are issued authorizing the use of these chemicals and fluids. Toxic or potentially toxic material shall not be disposed of in land fill sites."

RESPONSE:

A requirement to provide lists of "all possible alternatives" is unrealistic; as is a requirement to provide lists pertaining to the whole project before construction begins and permits are issued.

ALTERNATIVE RECOMMENDATION:

Lists of toxic fluids and chemicals to be used for the project shall be submitted to the Agency during final design. These chemicals shall be disposed of only in a manner approved by the Agency.

Page 53, "Revegetation"

"Evidence before the Inquiry has emphasized the importance of revegetation of disturbed areas both to retard thermal erosion and to prevent mechanical erosion by water. Proponents of any project will disturb large areas of tundra or boreal forest must demonstrate the capability to revegetate the disturbed areas."

RESPONSE:

The evidence before the Inquiry does not support this recommendation. As indicated to the Inquiry, Arctic Gas has already revegetated over 150 acres in the far north over a wide variety of terrain conditions. Furthermore, revegetation is a high priority not only from an environmental standpoint but also for the long term maintenance of the throughput of the pipeline.

Page 58, "Methanol"

"If methanol is to be used as a freeze-depressant for pressure testing, dikes or berms must be constructed at strategic locations to prevent the solution from entering a stream or a lake if rupture occurs. Such dikes would be built only where testing fluid would

drain into a water course in the event of a break and must be in place prior to testing."

RESPONSE:

The recommendations covering use of methanol should be based on site specific requirements. There are adequate data on methanol toxicity, and it has been shown that dilute solutions are not particularly toxic. Arctic Gas had described to the Inquiry its proposed use and handling of methanol. Where there is little chance of an accident, or where a spill would cause little or no harm, the requirement for building dikes would be an unnecessary impact on the environment.

Page 57, "Contingency Plans"

RESPONSE:

Arctic Gas has provided the Inquiry with evidence of its contingency planning for pipeline construction and operations and has indicated detailed contingency plans will be reviewed by the regulatory agency. Arctic Gas also filed with the Inquiry a report entitled "Arctic Oil Spill and Toxic Material Contingency Plan, June 1976" (see exhibit No. 666).

Page 59, "Fuel Storage and Transfer"

"5. Storage and transfer of fuels must be at least 1/4 mile from a watercourse."

RESPONSE:

This should be a site specific decision made at the final design stage.

Page 59, "Fuel Storage and Transfer"

"10. Tanker traffic through the Beaufort Sea to provide fuel to northern spreads will not be allowed."

RESPONSE:

The most efficient way of fueling the construction spreads in most locations is by barge when considering all the environmental aspects. It should be noted that all far northern settlements have been supplied by water transport for years. Such a blanket stipulation, if applied to every activity, would cut off such necessary shipping.

Page 63, "Fuel Storage and Transfer"

"A combined industry-government research program designed to find methods of cleaning up oil spills under Arctic conditions in different seasons must be instituted. (See section on wildlife research.)"

RESPONSE:

Such a program is underway with some basic research being done under the ALUR program. The status of this work was partly reported by Dr. Mackay to the Inquiry's hearings held in Toronto.

Page 65, "Fish"

"Crossings of streams in which fish have not been found must be handled as though fish had been found."

RESPONSE:

If there are no fish in the stream, then costly and unnecessary precautions should not be taken unless the absence of fish is not completely confirmed. Such precautions may in certain cases have other environmental side effects.

Page 69, "Environmental Studies"

"Studies must be carried out to evaluate the hypotheses:

1. that caribou are more likely to first cross a disturbed area in spring than in fall (therefore build in winter);
2. with an above-ground line, a light colour is preferable;
3. lines must be built so that they do not vibrate or make noise;
4. that caribou are most likely to cross an obstruction if they can see the other side."

RESPONSE:

These studies may be of interest to some persons, but they don't relate to the Arctic Gas proposal described to the Inquiry. In particular, an above-ground line is not proposed by Arctic Gas and the line will not vibrate or make a noise which would interfere with the passage of caribou.

Page 70, "Hunting, Fishing and Recreation"

RESPONSE:

Arctic Gas has advised the Inquiry that it does not plan to permit pipeline construction workers to hunt, fish and trap while at the Arctic Gas construction camps. The suggestion that northern residents working on the pipeline could keep rifles and traps in camp and be able to hunt and trap from camp is not acceptable. Arctic Gas has indicated (T:161-24799) that it is prepared to develop work rotation schedules with the communities in order to accommodate the desires of northerners to combine construction work and hunting, fishing and trapping activities. Firearms should only be permitted in the camps for security purposes. .

Page 71, "The Mackenzie Trunk Line"

"A buffer strip at least 300 feet wide must be left between trunk or ancillary facilities and rivers, streams, and lakeshores except at crossings."

RESPONSE:

This recommendation is not based on any evidence provided to the Inquiry. Quantitative recommendations in this detail should be prepared only on a site specific basis.

Page 72, "The Mackenzie Trunk Line"

"Both Dr. Vaartnow and Mr. Dabbs should proceed with their programmes in side-by-side tests designed by them in conjunction with another

recognized plant biologist. After three years, the results shall be assessed, and whichever company builds a pipeline shall use the more successful revegetation method or a combination of the techniques for controlling thermal erosion and stabilizing slopes."

RESPONSE:

As indicated to the Inquiry, Mr. Dabbs has been conducting revegetation tests for six years and has revegetated over 150 acres in the far north. The test results have been reported and demonstrate the capability of revegetation to control thermal erosion and to stabilize slopes. There is no need for the suggested side by side tests.

Page 80, "Looping"

"Looping is a part of that series of developments which can be foreseen as following a pipeline. Looping raises a major concern about the time span of the construction period. Looping must not occur unless approved by the native people, nor must any other future project. Looping must be subject to a detailed environment assessment."

RESPONSE:

All future construction of additional pipeline facilities will require applications to the National Energy Board, the Department of Indian & Northern Affairs, and the other agencies which have jurisdiction over such activities. Giving any particular persons or organizations a right to veto future construction of pipeline facilities is unacceptable.

Page 84, para. 1

"1. Hunting, trapping and fishing continue to be of great importance to native people. There is a need for cash but most native people want "jobs and hunting", not jobs instead of hunting.

Inuvialuit need the cash jobs can give them, but they also want the option of hunting and trapping kept open. They don't want to be just workers for someone else, they want to be professionals, administrators, business people and tradespeople. People want jobs in their home communities, and they would like to control their economic development. They want to take care of their own communities. Inuvialuit want a balanced, integrated and secure economy, not one which is dependent on one, outside controlled industry that will eventually go away."

RESPONSE:

Arctic Gas had indicated to the Inquiry its willingness to establish operations jobs for northern residents that will be permanent in nature and will attempt to accommodate employees who wish time to hunt, fish or trap. (T:161-24819). With respect to the construction phase, we have indicated that we will provide work which will have essentially tailor made schedules for those who choose to work on an on-and-off basis during the construction season (T:161-24799).

Insofar as the stated desire to be not just workers, but to be professionals, administrators, etc., this is a matter for personal development and requires participation with government through school systems on an evolutionary basis. Arctic Gas has described to the Inquiry its plans for on-the-job training of northerners in order that they can have jobs of various skill levels. (See T:161-24794-24795.)

Page 84, para. 2

"The wage economy has not served native people well in the past. Employment has been seasonal and has not offered security. Original people have had mostly unskilled, low-paying jobs. Very few native people have benefited from business opportunities. They have had no share of profits from industrial development, and no control over government or industry investment."

RESPONSE:

Arctic Gas evidence has indicated that the structure of the Nortran program is geared to training northern natives for permanent pipeline and petroleum related positions. (See T:161-24794-24798.)

Page 84, para. 3

"The kinds of employment offered on the construction of the pipeline and related developments do not suit the long term needs of native people on a long term basis. Especially on pipeline construction itself, the unions and contractors have made it clear that the experience and teamwork required, as well as considerations of

safety and equal treatment on the job, means that very few native people will be hired. They say employment schedules will not be flexible. Emphasis on native employment may have to be in the construction of compressor stations and gas plants, and in exploration and development, where there will be greater opportunity and flexibility (see manpower delivery recommendations). But even employment on ancillary facilities, well paying though it may be long term, is not in the communities, and is not long term, is not always compatible with hunting and fishing and trapping. These jobs can be of temporary benefit to native people but should not be relied on for the long term. The experience or training native people get on them will probably not be useful in their home communities and may not be useful anywhere in the north in later years."

RESPONSE:

As Arctic Gas has previously indicated its willingness to give preference to all employable northern residents who are desirous of construction employment (T:164-25464), there is no reason to believe that a large number of construction jobs will not be offered to northern residents. Arctic Gas has also indicated that it feels that the construction period would not be long enough for northern residents to develop the level of skills for the highly specialized pipelaying jobs such as pipeline welders and side-boom operations. The construction period will, however, provide the opportunity for the development by northerners of the skills necessary to be employed in such jobs as machine operators, carpenters, electricians,

clerks and survey technicians. These skills will be useful in assisting northern residents to acquire positions with the pipeline or other employers after the construction period. Arctic Gas has described previously its willingness to be flexible in establishing construction work schedules in order that community and personal requirements can be taken into account. (T:161-24799.)

Page 84, para. 4

"The kind of employment offered on the operations and maintenance of the pipeline and gas plants is also unsuited to the needs of native people. These are the jobs for which the Nortran programme is training people. They are full time jobs, not in the communities and not compatible with hunting and fishing. The Nortran programme leads people out of their communities and away from native life in preparation for these jobs. It trains people for jobs which exist mainly in the south, not the north. It seeks to reorient people to southern values and ways of life. It creates bad feelings among non-native coworkers.

Therefore, COPE does not ask for special hiring and employment provisions on the pipeline. COPE says native people must have equal access to union membership and employment on the basis of their actual competence for the jobs, and that they not be put at a disadvantage by virtue of their background or place of origin. We think quota systems or preferential hire will only create more problems than they solve."

RESPONSE:

Whereas in paragraph 2 above, there was a complaint that the work that would be offered would be seasonal, the complaint in this paragraph is jobs are full-time. It is stated that these jobs are not compatible with hunting and fishing and may lead people away from their traditional way of life. One could argue that they can't have it both ways, but the fact is, as stated above, that Arctic Gas had indicated that it would endeavor to establish flexible work schedules for northerners during the operations phase.

It should be pointed out that all of the Nortran training positions do not lead native people to southern jobs. As the Inquiry has been told, the main objective of Nortran is to train northern residents for the pipeline and development jobs in the north. It has to be recognized that, at the present time, the majority of on-the-job training positions are only available in the south.

Page 86, para. 9

"COPE says Inuvialuit need and have a right to balanced, long term development, based on local resources and community based and controlled enterprises. COPE recommends an alternative development programme suited to the needs of native people which includes the following things.

- a) improved assessment and management of the renewable resource base;
- b) improved techniques and programmes for renewable resource harvesting;
- c) making more money available to traditional activities.

These would increase the efficiency of hunters and trappers as well as create jobs in resource management at the community level.

- d) greater local processing of renewable resources, i.e. tanneries, garment manufacture, food processing, to create community based and controlled enterprises and employment;
- e) substitute locally designed and manufactured products for imports where practical. Obvious examples are building materials and housing;
- f) research and development into the possibilities of new uses for local resources, new methods of processing, new markets, etc. This research must be carved out by and with native people from the communities;
- g) replacement of non-natives in government and service positions in the communities by original people. This alone would create a large number of community based and controlled employment opportunities;
- h) reorientation of education and training programs to enable original people to fill these kinds of jobs;
- i) at a later stage, royalties from non-renewable resource development must become available for reinvestment in the renewable sector."

RESPONSE:

Arctic Gas has no position on the suggested economic development program since this is a matter which must be pursued with government.

The alternative does raise the question of the source of the financial resources necessary for the future development of renewable resource enterprises.

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RESPONSE:

Dealing generally with the submissions made in this section it should be noted that in its response to Commission Counsel's submission on "Impact Information" Arctic Gas had indicated the importance of the participation by government and others in programs to continue the supply of information on the pipeline project which has started with this Inquiry. Arctic Gas has also indicated a suggested method of representation of northern residents and Territorial Governments on a Northern Advisory Board which would work with the single regulatory agency (see T:200-31703).

Page 97, para. 1

"1. Inflation

Evidence from Alaska is that inflation spiralled with high pipeline wages, forcing many people into pipeline work in order to keep up with the cost of living and forcing many businesses to sell out or to go under. COPE is concerned that one of the effects of inflation will be to force people to desert the communities in favor of pipeline construction in order to purchase the goods and services they require. COPE sees no easy answer to this problem.

Cope recommends that unless an answer is found to the inflation problem which will permit people in the smaller communities a choice of life styles and permit people on fixed or low incomes to continue living without any greater hardship than they presently experience, the project should not be permitted to go ahead."

RESPONSE:

Arctic Gas has described policies which it has developed to avoid the problems experienced in Alaska due to pipeline development and resultant high wages. (T:16225097 to 25091 and 25424 to 25425.)

"2. Continuity of Supplies and Services

Despite assurances from the applicant, COPE is concerned that the construction of such a mammoth project as the Mackenzie Valley Pipeline will interrupt supplies and services, particularly to the smaller and more isolated communities.

COPE therefore recommends that it be written into the contracts between the applicants, the government and suppliers and carriers that communities must be guaranteed supplies and services prior and in preference to the pipeline company and its related contractors. Original peoples through their organizations must be involved in the negotiations of these agreements with carriers and suppliers. In areas where it is impossible for common carriers or suppliers to service both the pipeline companies and the communities, the pipeline companies must make other arrangements for services and supplies."

RESPONSE:

Arctic Gas has described for the Inquiry its policies which would assure continuity of supplies and services to communities during construction (see Responses to Commission Counsel's submissions "Northern Business" and "Regional Stability and Growth".)

Page 98, para. 3

"3. Employment Recruitment

Because of their experience with recruitment for other development projects, Inuvialuit state that their communities must be protected and isolated from massive recruitment within the communities. This does not mean that the communities do not wish to be consulted with regard to employment opportunities for their residents. Recruitment, however, must be with their consent on their terms and using hiring and work schedule models which may vary from community to community."

RESPONSE:

As indicated in its response to Commission Counsel's submission on "Terms and Conditions of Employment and Training" and its reply to the Council of Yukon Indians submission on "Pipeline Employment" (see p. C-21 of this volume), CAGPL would be prepared to work with government and local organizations to ensure that the long-term objectives of particular communities can be obtained.

Page 98, paras. 5 & 6

"5. Separation of Pipeline Workers From the Community

Inuvialuit in most of the communities have expressed fears of the consequences of southern pipeline workers coming into their communities and causing problems. Many people have experienced these problems before with previous oil and gas development, DEW line

construction, and evidence from the Yukon outlined the problems associated with the construction of the Alaska Highway.

As a result, COPE supports the recommendation and policy of the pipeline companies that workers will be kept out of the communities in the Mackenzie Valley. However, evidence we have heard from the unions is that they are not willing to go along with these restrictions on the activities and movement of their members. COPE has doubts of the legal ability of the pipeline companies to compel people to stay out of the communities particularly after they have been discharged or laid off. Inuvialuit therefore want to be involved in negotiations between the unions and the pipeline companies and the government so that the impacts of pipeline workers in the communities can be avoided."

"6. Control of Transients

Neither pipeline applicant could agree on the number of people that will come into the Northwest Territories attracted by pipeline work or spin-off activity. Both companies agree that they have no control over this themselves and rely upon the government to control the incoming transients. Inuvialuit are not interested in debating about the number of transients since their experience in the small settlements has been that a mere handful of transients can disrupt and divide communities, can take over businesses and business opportunities, the community councils, etc.

As a result, COPE recommends that the hiring and firing of personnel in community service positions within the communities be left in the hands of original peoples and others who have satisfied the 10 year residency requirement. COPE further recommends that with the possible exception of sports hunting in certain areas, that outsiders be prohibited from hunting and trapping unless they can satisfy the 10 year residency requirement."

RESPONSE:

Arctic Gas has described to the Inquiry its plans for keeping pipeline workers from visiting the communities and feels that these are matters which can be best administered by the pipeline company, its contractors, and the unions. (See T:161-24802, T:162-25062 and T:164-25405.)

Page 100, para. 7

"7. Control of Business and Real Estate

Because business opportunities, existing businesses and prime real estate are often taken over very quickly by outsiders who have an understanding of the way existing systems work and how to use them to advantage, COPE recommends that the individual communities must control the issue and revocation of business licenses and the purchase of real property within and adjacent to the communities. This does not mean that all outsiders will be precluded from owning land or running businesses in the communities but that the communities have continuing control within their boundaries. This involves a fundamental transfer of authority. As has been stated elsewhere in

this document, such a transfer can only satisfactorily be achieved through an adequate settlement of land claims. If this transfer of authority has not been carried out prior to authorization of pipeline construction, then Inuvialuit fear they will be swept to one side.

In matters involving the impacts of development on original peoples communities and ways of life, COPE recommends that the burden be on the proponents to show that they will not adversely affect the way of life of native people. It should not be up to Inuvialuit to show that development will harm them."

RESPONSE:

Arctic Gas is of the view that the question of controlling local businesses and real estate are matters to be considered by the various levels of government.

"This Inquiry has heard and seen evidence that the Federal and Territorial Governments in the Northwest Territories affect almost every aspect of the lives of local people and particularly original peoples. Government policies, plans and programs have greatly influenced the rates and types of change which have occurred in the Western Arctic. Inuvialuit have acknowledged that many of the government programs have been helpful. They have complained that they have not been consulted about the contents of government policies and programs. They have stated to you that when they have offered suggestions these have generally been ignored. Construction of a Mackenzie Valley Pipeline would involve expansion of existing government programs, the introduction of new ones and an increased use of present and planned government services. COPE recommends that before the construction of a gas pipeline, an independent assessment and evaluation of the Federal and Territorial Governments roles programs and services must be carried out in the Northwest Territories. This assessment must involve the original peoples in the Western Arctic with full opportunity on the community level to voice concern and outline problems encountered with Federal and Territorial Government Services.

As a result of its concern over the control of government COPE makes the following recommendations:

1. As part of a land claims settlement, responsible government must be given to the people of the western Arctic.
2. There must be an evaluation by the people in conjunction with government of programs, policies and services.
3. Original peoples must through a long residency requirement maintain control over their regions and their communities in the face of the immigration of thousands of outsiders. COPE recommends a 10 year residency requirement for eligibility to vote in any and all elections.
4. The municipal model of local government in which communities are advanced to increasing levels of responsibility based on the criteria of size, level of administrative competence and sufficient tax base must cease to be used in the Northwest Territories. The criteria of assuming increased responsibilities for their own affairs must be set by the communities themselves and in the areas that they see as important. The role of the senior levels of government specifically the Department of Local Government of the Territorial Government must simply be consultative and they must be available to provide technical assistance when the communities require it.
5. The responsibility of local councils must be expanded. We have heard evidence from Alaska of the borough system which enabled the Inupiat of the north slope to achieve strong local government in conjunction with their land claims. Through this they were able to develop a tax base which they required to implement the policies and programs they wanted. Inuvialuit must have similar power over development within their communities and upon their land."

RESPONSE:

Arctic Gas has no position on the desirability and timing of an independent assessment and evaluation of the Federal and Territorial Governments roles, programs and services. The Inquiry has heard evidence from Messrs. Elkin and Yates outlining the review currently being conducted by the Territorial and Federal governments to prepare for pipeline development. In addition, it should be remembered that a large number of submissions made by Participants in this Inquiry contain suggestions for revised government programs, roles and services.

RESPONSE:

Dealing generally with the matters raised in the "Introduction", the Arctic Gas response to these recommendations is the same as to the preceding section on "Federal and Territorial Governments" and also makes reference to the evidence presented to the Inquiry which demonstrates the unlikelihood that the Alaskan experience will be repeated.

Dealing with the second full paragraph on Page 109, Arctic Gas has indicated its willingness to keep communities advised of changes in the plans and policies which were described to the Inquiry.

Page 110, "Health"

"1. COPE therefore recommends that a Task Force be organized now to evaluate the present of level in the Northwest Territories to identify specifically the current inadequacies and to forecast potential development impacts upon medical services and the health of native peoples and others living in the Western Arctic. This Task Force should study what has happened in Alaska and should draw upon the Alaskan native health service experience in rural areas and the native non-profit corporations and the health services in urban areas like Fairbanks, Anchorage and Valdez. This Task Force should be made up of representatives from medical services, the Department of National Health and Welfare, the Department of Social Development of the Territorial Government and representatives of the native associations and communities in the area likely to

experience the impacts. It might also include hospital and university authorities outside the Northwest Territories.

2. Original peoples must be involved in the delivery of health care services to their own communities and in the evaluation and institution of health care programs and facilities.

3. The Department of National Health and Welfare together with the native associations and the communities should establish local and regional advisory health boards. They should within a set time period take over the operation of Health care services and facilities.

Appropriate models include the Churchill Health Center, the James Bay Project, the Katen Health Care Center in Caughnawaga and the Alaska Native Non-Profit Corporations. Regional and local boards must be established and in operation before commencement of construction of a pipeline.

4. Original peoples must be recruited and trained in all levels of health care.

5. COPE recommends that local people have authority and control of health care services. At this time, COPE does not support the recommendation that health care services be transferred from the Department of National Health and Welfare to the Territorial Government. There is no evidence that the Territorial Government will be any more responsive to the needs and concerns of Inuvialuit than the Department of National Health and Welfare. Witnesses have pointed out to you that two conditions are necessary for the transfer of medical services to the Territorial Government. In the first place, the Territorial Government must show that it is as capable or more capable than the Department of National Health and Welfare to deliver

the services. In the second place, such a transfer should only be on terms to which native people consent. Neither of these conditions has yet been met.

6. Because the existing health care facilities in the Western Arctic are presently utilized to capacity or over utilized, we recommend that pipeline personnel, contractors and their employees do not use existing facilities unless and until their carrying capacities have been increased to meet present and projected future demands of the local population as well as the increased demands placed on facilities, personnel and services by this project. Considerable lead time may be required as evidence has been lead from Doctor Hildes that it requires 5 years to put a regional hospital into operation.

7. The costs of expanding services to meet the direct and indirect demands of pipeline construction must be born by the applicants.

8. Medical examinations of pipeline workers should be carried out in southern hospitals except for those northern residents who are employed on the pipeline.

9. The capacity of the Tuktoyaktuk Nursing Station must be evaluated. Any plans to expand the Tuktoyaktuk Nursing Station must take into account not only the possible impacts on pipeline construction but also of increased exploration and the construction of gas plants and ancillary facilities. Under no circumstances must the services extended to the residents of Tuktoyaktuk suffer or be curtailed.

10. An evaluation of the present nursing station facilities and staff must be made to determine their present capacity and to forecast future needs.

11. The Community Health Aide Program must be expanded and upgraded to insure that at least one community health aide is working in each community. Continuing education must be provided for these people. The salaries of these positions must be raised so that they are competitive with short term jobs in pipeline construction and ongoing development.

12. The Department of National Health and Welfare must develop a trained interpreter corps immediately. Interpreters must be available in the Inuvik Hospital to provide interpretation into all the native languages used by the people in the region. We believe in most of the settlement nursing stations, the community health worker could fill this role. Evidence has been lead that language is essential to communicate and diagnose health matters even though most original people in the COPE region have a basic knowledge of the English language. The current practic of using native employees who are trained neither in interpreting nor in medical terminology to translate in the hospital must be ended.

13. The Department of National Health and Welfare which has the responsibility to monitor the water supplies and the sewage effluent must insure that they have adequate personnel prior to the commencement of pipeline construction. It is further recommended that before the pipeline construction, National Health and Welfare and the Territorial Government undertake an assessment of the adequacy current services and the capacity to maintain these with projected population increases."

RESPONSE:

Arctic Gas feels that recommendations numbered 1 to 5 and 9 to 13 are matters for government. Recommendation numbered 6, is in accord with testimony presented by Arctic Gas (T:162-25067 and T:163-25199). Recommendation 7 raises the issue discussed by Arctic Gas in its response to Commission Counsel's submission "Action Communities - Impact Funding" and Recommendation 8 is in accord with Arctic Gas policy (See T:161-24801).

Page 115, "Mental Health"

"1. COPE recommends in addition to the general health recommendations made above that a satisfactory land claims settlement which would restore to original peoples control over their lives and institutions is a basic requirement to the mental health of all people living in the Mackenzie Region.

2. COPE recommends that a study be conducted of the Alaskan system of native professional and para professional mental health care delivery systems and the development of a similar scheme in consultation with the communities which suits the requirements of the Inuvialuit."

RESPONSE:

The Arctic Gas position on the settlement of land claims and the effects on northern residents of the delayed development of northern resources was dealt with as part of its final argument (T:200). (See also its reply to Commission Counsel's submissions "Action Communities - Mental Health" and its reply to the Mental Health Association's submission).

"1. COPE recommends that more research be done, not simply on alcohol but on the incidents of alcohol problems of various groups, races and cultures. Equally important is research into alternative methods of prevention, treatment and rehabilitation of alcoholics which may work better in treating native peoples.

2. Inuvialuit must have the power and authority to determine and implement their own alcohol policies and programs. They must be able to decide what alcoholic beverages should be available, what they should cost, whether alcohol should be rationed or prohibited and what kinds of prevention, education, treatment and rehabilitation programs should be implemented. It is important that native people retain this control not only in communities where they hold a numerical majority but in larger communities where they are not. This might be achieved by long residency requirements to participate in alcohol plebiscites. COPE recommends a ten year residence requirement.

3. COPE supports the recommendation of the unions with regard to the availability of alcohol in construction camps. It is recommended that it be available during off hours but in a controlled setting such as a bar where people can drink together socially and have other forms of recreation available. COPE is pessimistic about the ability of the companies or others to control private supplies of alcohol within construction camps.

4. In all construction camps where native people are employed, there must be available a native alcohol counsellor who can communicate with employees in their own language and who has had training in

alcohol counselling. Training of native alcohol counsellors should involve native associations and communities."

RESPONSE:

Arctic Gas believes that this question is a matter to be dealt with by governments. Dealing specifically with recommendation number 3, this appears to be in accord with Arctic Gas policy. (See response to Commission Counsel's submission "Action Communities - Alcohol"). Dealing with recommendation number 4, Arctic Gas has indicated that it will offer a counselling service for all construction employees on an on-going basis with an emphasis on the needs of employed northern residents. (See T:161-24799).

Page 118, "Courts and the Legal System", Page 120 "Education", and Page 122 "Recreation".

RESPONSE:

These are matters for government to consider. Reference should be made to the Arctic Gas responses on these subjects raised in Commission Counsel's submission.

Page 124, "Manpower Delivery"

"1. COPE recommends that in consultation with native associations and the communities that a means be developed so that native people who possess skills and wish to work on the pipeline and related facilities can be certified objectively on the basis of their skills and obtain union membership with a minimum of complicated procedures.

2. COPE supports the union recommendation about a community information program to provide easily understandable materials about unions and how to obtain membership. There must be a local employment officer in each community thoroughly knowledgeable about union membership requirements, the jobs available on pipeline and ancillary facilities and the skill levels required.
3. There must be a clear and swift grievance procedure for all northern people who feel they have not been classified in accordance with their skills or who feel they are being discriminated against. Original peoples must be members of any body which discusses grievances.
4. There must be a native counselling system with native counsellors in each camp which would be independent of unions, contractors, applicants, and government.
5. COPE supports the recommendations of the unions and the Gemini North Panel that there should be a single agency which deals with all aspects of pipeline employment, recruitment, training, and union membership with strong powers in enforcement where unions, contractors, applicants, or government are not living up to their responsibilities and to whatever stipulations may be established for the construction of the northern pipeline or related facilities.
6. COPE supports the recommendations of the union that no hiring halls be established in the Northwest Territories. Non union residents and union members from outside must only obtain pipeline employment through established hiring halls in Edmonton and other southern locations. Northwest Territories residents must be able to remain

in their communities until they actually have a job. COPE recognizes that there may be problems with the customary 48 hour dispatch limit for pipeline construction and recommends that they continue to be consulted about this.

7. COPE recommends that new members of unions be able to pay union initiation fees and dues through payroll deductions.

8. COPE strongly recommends further discussions between unions, pipeline contractors, and native organizations on the subject of work schedules. COPE is not satisfied that pipeline employment schedules must be those used in Alaska. Every effort must be used in consultation with communities and native associations to work out schedules which will accommodate local people as well as be efficient and economic from the point of view of pipeline construction.

RESPONSE:

Mr. Hollands has described for the Inquiry, the Arctic Gas employment policies which would meet the concerns expressed in this section.

(See T:161). In addition, reference should be made to Arctic Gas response to Commission Counsel's submission on "Terms and Conditions of Employment and Training".

Page 128 "Regional and Community Planning, Page 131, Regional Impact Information Centre; and Page 133, "Lead Times".

RESPONSE:

Arctic Gas does not share COPE-ITC's concern that the Alaska experience could be repeated in the construction of the Mackenzie Valley pipeline. The main reason for this position is that, recognizing the need for consultation, and the Alaska experience, the consultation process started at least two and a half years ago with the establishment of this Inquiry and the other review procedures which are applicable to the pipeline related activities. As indicated earlier in this response, Arctic Gas intends to keep northerners informed of the details of its project and, in particular, intends to consult with particular communities on development activities of local interest. (See also response to Commission Counsel's submission on "Action Communities - Impact Information".)

Page 134, "Legislation"

"COPE therefore recommends that a thorough review of existing legislation which might affect land claims, land use planning and the pipeline carried out by the Federal and Territorial Governments in consultation with local and particularly with original peoples to assess the present laws, to evaluate and determine the requirements for new laws and to draft and pass legislation which is thoughtful, complete and just."

RESPONSE:

As indicated under the heading "Federal and Territorial Governments" above, the federal and territorial governments have started some time ago to plan for the pipeline and related development. An example of

this type of planning is the establishment of the Working Group in Government Operations which after reviewing the various applicable legislative provisions recommended the establishment of a single regulatory agency to effectively administrate such provisions and the right-of-way agreement stipulations. The adoption of the single agency concept described by Arctic Gas, and a number of the other participants in their final arguments, should go a long way to meet the need to effectively regulate the project. Arctic Gas does agree that there is a need to know at an early date all of the provisions of any new legislation and the stipulations which may be applicable to the pipeline so that it can reflect these matters in its plans.

COMMENTS ON SUBMISSION OF
COUNCIL FOR YUKON INDIANS

GENERAL

As indicated in the introduction to this Volume, Arctic Gas is not responding to each point raised in the submissions of the Participants. Using the written CYI submission, dated November 15, 1976 Arctic Gas is commenting on a number of specific recommendations made in that CYI submission.

SUMMARY OF FUNDAMENTAL RECOMMENDATIONS (p.A-1)

Recommendations

No. 8

"That neither the Prime Route nor the Interior Route be approved for pipeline construction because the combination of the completion of the Dempster Highway, construction of a gas pipeline, and the increased human access subsequent to that construction will lead to a serious decline in the population of the Porcupine caribou herd and the undermining of a major food supply and cultural aspect of the people of Old Crow."

RESPONSE:

It has been the submission of Arctic Gas that pipeline construction will not have a significant, if even detectable, influence on the Porcupine caribou herd. The mitigative measures, e.g., winter construction, snow roads, avoidance of disturbance, taken while building and operating

the pipeline will prevent any undue impact.

No. 9

"That the concept of "user pays" be applied to the successful applicant with respect to:

1. environmental damage
2. increased social costs and overhead in communities
3. increased cost of living in communities
4. monitoring function
5. impact funding."

RESPONSE:

Arctic Gas agrees that with regard to those matters where there is a direct impact, or where work has to be done to monitor the project, it should be responsible. Other indirect impacts, if any, are properly the responsibility of government. (See Responses to Commission Counsel's submissions "Action Communities - Impact Funding".)

THE LAND CLAIMS PRINCIPLE (p.B-1)

OLD CROW LAND CLAIMS PRINCIPLES (p.C-1)

As stated in the introduction to this Volume 3, the Arctic Gas position on the major issues raised by the Participants is contained in its final argument and specifically its position on land claims can be found at pages T:200-31655 to 31681.

Dealing specifically with the application of the Arctic Gas position to the principles raised at pages C-1 and C-2 of the CYI submission, reference should be made to Dr. Hobart's testimony quoting the anthropological studies made of Old Crow by Balikci which indicated that since the very early 1960s the people of Old Crow have been eager to obtain wage employment and have tended to take advantage of opportunities for wage employment rather than pursue hunting even when the game has been within a relatively short distance of the community. (T:157-24103.)

With respect to the bottom paragraph on page C-3, the studies made by Balikci also support the last sentence of this paragraph:

"The people of Old Crow have made many adaptations over the years but have retained the essence of their own distinct pattern of culture."

The many adaptations referred to here certainly include a rather wide-spread tendency to use such wage economy opportunities as come their way in order to supplement their income from other sources.

Page C-2, para. 3

"There has also been considerable evidence presented to the Inquiry which casts doubt on the ability of the applicant to ensure the integrity of the herd."

RESPONSE:

On the contrary, none of the expert witnesses were able to substantiate testimony to support this conclusion. Arctic Gas testimony is that there is scientific proof that the disturbance occasioned by pipeline construction to this herd will not be significant.

OVERVIEW (p.D-1)

Page D-3, para. 1

"The evidence that this Inquiry has heard about the drastic decline in the numbers of the North Slope caribou herd in Alaska is extremely disturbing in that the caribou biologists are unable to formulate a management response simply because the factors causing the decline cannot be adequately identified."

RESPONSE:

Research on the Porcupine herd has concentrated on the effects of pipeline-related disturbance and methods to minimize this disturbance to the point where its effects will not be significant. The complex factors related to the population dynamics of the North Slope herd were not within the terms of reference of this study.

Page D-4, para. 1

"If the Interior Route were to be approved, the problem would be compounded as the three access roads to the interior route from the Dempster Highway create further interaction with the caribou herd and also opens up the entire region between the Dempster Highway and Old Crow and the Porcupine River to general human access."

RESPONSE:

Testimony of Arctic Gas witnesses has indicated that it is reasonable to expect government to develop mitigative measures for the highway (traffic controls, hunting restrictions, human access restrictions,

development limitations, etc.) and has described the plans for the pipeline uses of the highway, if the Interior Route was approved and the highway constructed. These in combination would result in a manageable impact on the Porcupine herd.

Page D-4, para. 2

"We submit that the weight of evidence indicates that calving is the most susceptible caribou activity because any disruption of it results in direct declines in the populations of the herd. Disruption of migration on the other hand could not only lead to caribou mortality but could also dictate use of different and less optimum wintering ranges."

RESPONSE:

The issue should be not a discussion of relative importance, but what the effects of pipeline construction and operation will be. Arctic Gas has demonstrated that these impacts are manageable and can be mitigated.

Page D-4, para. 2

"The surprising fact is that caribou research has come to a halt now that CAGPL has prepared its study and is awaiting permission to construct a pipeline. Without the further demographic research carried out well in advance of the pipeline construction, we submit that the Porcupine caribou herd may face the same problem confronting the North West Caribou Herd in Alaska. Without the completed research and study it will be impossible to isolate the factors con-

tributing to any declines and thereby resulting in an appropriate wildlife management response. Furthermore, the failure to isolate the cause of the decline in Alaska reinforces our view that a pipeline should never be constructed across the northern Yukon."

RESPONSE:

The allegation that Arctic Gas has ceased the caribou studies is totally false. Arctic Gas has conducted research to determine the impact of construction and to define broad mitigative measures. Monitoring of the movements and distribution of the Porcupine caribou herd has been an on-going annual program since 1971 and will continue through construction in conjunction with detailed engineering design, construction, and in the operational phase, as applied to the gas pipeline.

Page D-5, para. 1

"We submit that Mr. Jakimchuk's list of advantages and disadvantages did not take into consideration the fact that the Dempster Highway and the three access roads to the Interior Route impacts not only the wintering range south of the Dempster Highway but the entire wintering range between the Dempster Highway and the Interior Route. In other words, the transportation infrastructure required to haul pipe and pipeline facilities must be taken into account. We also submit that all the other subsidiary developments such as mining and increased activity in the Eagle Plains Basin and the possibility of an oil pipeline must be taken into consideration."

RESPONSE:

Arctic Gas' position is that adequate government control of hunting, development, access, etc., is essential to proper management of all resources, with or without a pipeline.

Page D-5, para. 1

"The entire concept of adding the natural impacts plus the man-made impacts cannot be fully understood in any event because present research over a short time span has not provided the results to fully understand the natural dynamics of caribou population and movement."

RESPONSE:

The Company believes it knows enough to accurately predict impacts. It is worth noting that native peoples claim to have managed these resources for centuries without fully understanding all these factors.

Page D-7, para. 2

"The basic values of pipeline proponents and the Indian communities are so diametrically opposed that no adequate cost benefit analysis can be successfully applied."

RESPONSE:

The material from Balikci to the Inquiry referred to above clearly contradicts this view. Furthermore, at the bottom of this para-

graph "the view (of Arctic Gas) assumes an 'either/or' condition in which native society either follows a purely traditional way of life or turns to a purely wage employment way of life". This statement is clearly erroneous in that the evidence presented in chief by Arctic Gas did not assume this 'either/or' condition at all but rather assumed that wage employment and the harvesting of the land resources are complimentary in the way of life of native people and that because they are complimentary, it was essential to ensure continued availability of wage income to the native people. Arctic Gas agrees that "the man/land ties are not disappearing but rather being redefined". (Two lines from the bottom of Page D-7.) Arctic Gas emphasizes that this process must be permitted to continue in a carefully studied and controlled way rather than attempting to fixate the process at an earlier stage of development.

Page D-9, para. 3

"We recommend that wage and price guidelines be implemented and enforced during the construction phase."

RESPONSE:

For a discussion of the impacts upon local businesses reference should be made to Arctic Gas comments on Commission Counsel's submissions dealing with "Northern Business". While this is a matter for government consideration, it should be borne in mind that the increased earnings of pipeline workers come primarily from the very high proportion of overtime at overtime rates that they are able to put in, rather than the high wages that are paid. Accordingly, the conflict implied in this paragraph which deals with employment dislocation to the regional economies does not need to be anywhere near as great as is implied in this paragraph.

Page D-10, "Costs of In-Migration"

RESPONSE:

The submissions made in this section have been responded to as part of the Arctic Gas responses to Commission Counsel's submissions.

Page D-11, para. 1

"If there is to be a pipeline development, we submit that the region should receive an economic rent from the pipeline development."

RESPONSE:

Arctic Gas' position on this issue is found under its response to the Commission Counsel's submissions on "Action Communities - Impact Funding".

Page D-12, "Concept of 'User Pays'"

RESPONSE:

Again the response to this recommendation is found in "Action Communities - Impact Funding". It should be noted that Canadian consumers will be major users of the natural gas to be carried by Arctic Gas.

Page D-13, "The Performance Bond"

RESPONSE:

Reference should be made to the Arctic Gas response to Commis-

CAGPL INTERIOR ROUTE

Specific Recommendations

Page E-7, para. 1

"The most obvious recommendation that has been discussed throughout the course of the Inquiry states that pipeline construction workers must be kept in construction camps at all times. No doubt efforts should be made to provide taverns and organized prostitution in construction camps but we feel that these recommendations will ultimately fail in that every person who comes north would take it as a personal failure if they were unable to experience life in a small Indian community adjacent to the pipeline. In addition to the movement of pipeline related personnel there is also considerable concern about the immigration of people not related specifically or directly to the construction of the pipeline. We are inclined to feel that there are no recommendations that we can make that will assist the applicant in terms of managing this situation."

RESPONSE:

Arctic Gas has told the Inquiry that access to the communities would be strictly controlled and that its camps will be as comfortable as possible.

Page 3-7, para. 2

"All the construction workers should be flown in and out of the construction job from the camp through southern centres and in

the event of lay-offs, strike problems, or shut downs, all the workers in construction camps should be flown out immediately for the duration of the disruptions. The difficulty with this recommendation is that no company can force a worker to get on an airplane, particularly when it is a labour disruption and the company will in fact have no control over the workers whatsoever."

RESPONSE:

This is also part of Arctic Gas' construction plans. Arctic Gas will return all fired or resigned southern workers to their point of hire in the south. Whether employees are returned to the point of hire during a strike, lay off, or shut down would depend on the anticipated length of such work cessation and how long it would take to arrange for transportation of such workers to their point of hire.

Page E-7, para. 3

"We recommend that communities such as Old Crow be empowered to control the immigration of outsiders. The difficulty with this recommendation is the legal problem as to whether or not a community can in fact prevent any person from entering that community and also whether the community would be able to enforce such controls particularly when members of the community would be returning with new found friends from construction camps. The conflicts created in those cases would be unavoidable."

RESPONSE:

This is a matter to be considered by government.

Page E-8, para. 5

"We recommend that it be a term and condition with respect to Old Crow that the pipeline company be absolutely prohibited from making any use of Old Crow and the Old Crow airport facilities because of the immigration problem and also because of the lack of suitable space for stock piling equipment and supplies that would not impinge upon local community activities."

RESPONSE:

Arctic Gas' construction plans do not call for use of Old Crow's facilities.

Page E-8, para. 6

"We also see problems with making construction camps too attractive in that native people will be drawn to these construction camps from the communities without fully realizing what such a move would entail in terms of social and cultural impacts."

RESPONSE:

Arctic Gas camps will be restricted to project-related personnel during the course of their employment.

Page E-8, "Problem - Increased Alcohol Consumption"

RESPONSE:

While these recommendations are a matter for government to

consider, the assumption that there will be increased consumption of alcohol in Old Crow by construction workers is not correct because of the Arctic Gas policy of keeping its workers out of the communities.

Page E-10, "Problem - Shift In Community Control"

RESPONSE:

This paragraph assumes that there will be "an influx of people to service existing institutions". The point here is that any increased servicing could well be performed by the people of the community. As indicated elsewhere, Arctic Gas will not have any requirements for such services. With education and skill upgrading of the young people, there would be a need for more highly skilled employment such increased servicing would provide. Thus, this need, from resulting in a shift in community control, would enable the community to better retain the loyalty of its young people. (See Also T:164-25386).

Page E-11, "Problem - Deterioration of Health and Mental Health"

RESPONSE:

With respect to the statement that "The first and probably the most important from a physical health standpoint is that there would be a reduction in land based activities", it should be noted that Arctic Gas has indicated (T:161-24822 to 24823) that it will recognize that its employees will continue traditional pursuits related to the family and

community. The Inquiry has heard evidence that development activity in Arctic Bay, Coppermine and Rankin Inlet has not resulted in a decline of land resource harvesting activities. Wage employment and land game harvesting activities have been found to be complimentary rather than antithetical and there has not been a resultant increase in demand put upon mental health facilities in these three communities due to residents being involved in development. The response to this specific recommendation is a matter to be considered by government.

Page E-12, "Problem - Changes in the School System"

RESPONSE:

The Arctic Gas position on immigration of pipeline workers is a partial response to the points raised. the observation that "almost all" of the youth of Old Crow are currently going to high school in Whitehorse is interesting in light of the claim that Old Crow wants to continue as a traditional community. With respect to the point on drop-out, this seems to involve the youth in making a trade-off between taking construction jobs versus continuing in high school so that they can take advantage of the increased job opportunities for high school trained people which would result from pipeline development.

MAN LAND RELATIONSHIPS

Page E-15, "Problem - Impact on Hunting and Trapping"

RESPONSE:

Arctic Gas intends to implement this recommendation for all of its construction camps.

Page E-15 to Page E-19

RESPONSE:

The Arctic Gas position on immigration, community contacts, hunting and fishing prohibitions on workers and training, including environmental training, have been fully described to the Inquiry. (See T:161-24800 to 24801.)

Page E-19, para. 1

"1. Calef on page 16,189 indicates what is required in terms of being able to establish accurate population estimates.

- (a) That the post-calving aggregations need to be surveyed on a yearly basis;
- (b) The pattern and distribution and movement of the herds throughout the year needs to be clearly understood and seasonal uses of the range has a need to be clearly understood;
- (c) The demographic characteristics of the herd need to be understood, i.e., the productive rates, survival of calves, mortality, etc."

RESPONSE:

Arctic Gas agrees with Calef's position; in fact, the on-going

caribou monitoring program is designed to accomplish these same objectives.

Page E-19, para. 2

"It is recommended that all these aspects and studies be conducted and analytically researched before any pipeline in the northern Yukon be constructed or before any other developments of the nature of this order are given a go ahead. Potential failure of these recommendations rest in the fact that these studies are both long term and are not necessarily conclusive studies."

RESPONSE:

Arctic Gas will conduct further caribou research and monitoring as the project develops (e.g., detailed design, construction, operation). Each phase has its distinct requirements which will be addressed as the project progresses.

Page E-19, para. 3

"It is recommended that developments in the Western Arctic Herd be thoroughly understood and documented prior to the construction of any pipeline so that the knowledge gained from such an endeavor may aid in assuring that such population declines do not accompany the construction of the pipeline through either the Interior or Prime routes."

RESPONSE:

Where the results can be extrapolated, these data would be of value in the pipeline study.

Page E-20, para. 1

"Jakimchuk also indicates that a number of behavioural and movement of populations patterns have occurred in response to natural changes or changes in natural environmental conditions such as snow depth, temperature, spring breakup times and so forth. These relationships have not been adequately documented or investigated. It is recommended that the CAGPL undertake the analysis of these considerations, as well as consideration of the impacts other subsidiary developments may have upon the total herd. The failure of this recommendation is that the applicant is claiming only responsibility for the development of a pipeline."

RESPONSE:

Where data already generated in these areas prove inadequate, work will be undertaken as required. However, the scope of the work should only reflect those impacts associated with pipeline activities. Impacts related to other development, highways, town expansion, etc., rightly belong in the hands of those responsible. Arctic Gas submits that adequate information exists for the proposed pipeline.

Page E-20, para. 3

"Should any deviation of proposed plans be considered, we recommend

that the conditions of construction be totally reassessed in the light of the potential impacts upon the caribou herd. The problem with initiating action on projects of this magnitude is that once the project is undertaken it is almost impossible to stop or divert it. It would mean that the Porcupine caribou herd would just have to suffer through the construction phase."

RESPONSE:

Arctic Gas is committed to monitor the Porcupine caribou herd through construction and modify its plans as changing situations demand.

Page E-21, para. 1

"Spills of toxic materials are impossible to clear up once they enter subsurface drainage systems or travel beneath ice and snow. The only possibility for protection is in terms of minimizing the amounts escaping in spills. However, if serious damage does occur the economic and cultural consequences for the people of Old Crow are serious and immeasurable."

RESPONSE:

With the exception of methanol, toxic materials will largely be contained to compressor sites and staging sites and stored safely in suitably diked areas. Methanol toxicity problems are minimal and have been discussed at length.

RESPONSE:

Pipeline construction employment opportunities will exceed the number of Old Crow residents interested in employment. The freedom of choice to accept or reject these opportunities must be respected. Having said this, Arctic Gas has also taken the position that the interests of the community can be helped by coordination of employment opportunities through the utilization of a Northern Manpower Delivery System. Furthermore, Arctic Gas is willing to enter into arrangements with the community whereby a given number of construction jobs are filled on a rotational basis by the employable, interested residents of Old Crow -- an arrangement similar to that used in Coppermine. Finally, it should be noted that in the communities in the Delta and outlying regions the experience of large numbers of residents abandoning community jobs and traditional pursuits such as hunting and trapping for wage jobs in the petroleum industry has not occurred.

RESPONSE:

This recommendation is directed at government.

Page E-25, "Welfare and Assistance"

RESPONSE:

With respect to the welfare and assistance discussions beginning at the bottom of Page E-25, the point had been made before that studies of other communities which have experienced increased wage employment that there has been no significant decline in the utilization of the traditional economic resources as this discussion assumes. Indeed, the indication is that harvesting of traditional resources in fact, increases both in scope and in efficiency because increased money available in the community means that more of the goods needed to harvest these resources can be purchased. Thus, the hunting capacity of the community could be effectively increased. This is an obvious matter for further government study.

Page E-26, "Transportation Infrastructure"

RESPONSE:

Please see Arctic Gas responses to Commission Counsel's submissions on "Native Communities - Traffic to Communities" and "Regional Stability and Growth".

Page E-27, "Increased Cost of Living"

RESPONSE:

Please see Arctic Gas response to Commission Counsel's submis-

sion on "Action Communities - Impact Funding".

Page E-28, "Business Activities"

RESPONSE:

Arctic Gas has dealt with the general matters raised in this discussion under the heading "Northern Business" in its responses to Commission Counsel's submission.

Page E-29, "Increased Exploration Activity"

RESPONSE:

Arctic Gas is not engaged in exploration activity.

Page E-31, "Employment Opportunities - NORTRAN"

RESPONSE:

The second paragraph on Page E-32. It is obvious that the future for some of the young people of Old Crow is not to be found in the community, because of the large birth rate and the population is expanding in that community as in the native communities in the Northwest Territories. Accordingly, it is necessary for the young people of Old Crow to find employment elsewhere and NORTRAN and the employment opportunities which an operating pipeline would supply provide such opportunities for the growing population of Old Crow.

With respect to the testimony which Dr. Hobart gave to the Inquiry referred to in the paragraph at the top of Page E-33, it may in fact be true that an operating pipeline would not provide for all of the job needs in Old Crow and other communities in this area. However, that fact should not be the basis for vetoing a project which could meet some of the employment needs in the area. Furthermore, it is likely that subsidiary development both of renewable and non-renewable resources in the area would follow in the wake of the infusion of cash into the local economy resulting from the pipeline project. Such further developments would also provide more employment opportunities.

Page E-33, "Gas Supply to Communities"

RESPONSE:

Arctic Gas has outlined its position on making gas available to those communities who may desire it in its response to Commission Counsel's submission on "Native Society - Energy Supply".

Page E-34, "Business Opportunities and Benefits"

RESPONSE:

A discussion of the opportunities which the residents of Old Crow might wish to take advantage of is referred to in the response to "Page E-28, Business Activities", above.

Page E-35, para. 3

"The discussion of the environmental impacts which would accompany the Interior route have given little attention to the access issues which would also accompany the development. The Interior route would mean utilization of the Dempster Highway with one permanent access road to the pipeline right-of-way and two snow roads. This would cause a whole series of disruptions to the Porcupine caribou herd. All the access routes bisect their winter range. The second factor related to the access issue is that these routes are open to traffic from throughout the Yukon and southern Canada. This gives a direct road linkage to the pipeline right-of-way that is not available on the Prime Route."

RESPONSE:

Arctic Gas will restrict its construction activities if they become detrimental to the Porcupine caribou herd. Access to company roads and facilities will be forbidden to the public.

Page E-35, "Access and the Corridor Concept"

RESPONSE:

The Arctic Gas position on routing is well known to the Inquiry. Particular reference should be made to the Arctic Gas oral argument on routing, Volumes 200 and 201 of the transcripts, and to its responses to Commission Counsel's submissions "The Project - Location and Routing".

THE PRIME ROUTE

Page F-1, "Introduction"

RESPONSE:

Arctic Gas is aware that the people of Old Crow have indicated that they would rather have the CAGPL pipeline built along the Prime Route rather than the Interior Route. As indicated below, Arctic Gas feels that the Prime Route will have no negative impacts on the Porcupine caribou herd.

Page F-3, para. 1

"The Alyeska experience indicates that there is a great deal of pressure to meet scheduled dates once a project has begun. The problem with this is that it conflicts with the "as proposed" assumption of Mr. Jakimchuk and if schedules are behind then there would be potential disruption to the caribou. It is recommended that all of the scheduling be firmly bound to the cycle and movement of the caribou. It is also recommended that if a significant number of caribou winter along the north coast that construction be put off for that year along the north coast. The failure of these recommendations is that once the project is initiated the national and international pressure to complete on schedule will overwhelm environmental concerns."

RESPONSE:

The Company's position is that construction activities will be constrained when there is a serious conflict with caribou. These could occur during such times as migration, calving, post-calving aggregation, etc. The caribou will be monitored during construction to prevent the occurrence of any significant disruption.

Page F-4, para. 2

"If there are pipeline failures or problems that would ordinarily require summer maintenance it is recommended that the pipeline shut down during the caribou calving and post-calving aggregation and that maintenance be undertaken after these periods are over. The failure of this recommendation is that it would be uneconomic to operate the pipeline on this type of basis because it could well lead to a number of shutdowns on a seasonal basis."

RESPONSE:

In the unlikely event of a failure in one of the sensitive areas, then several environmental concerns would have to be weighed, but the basic approach would be to repair the break as quickly as possible and with the least environmental impact. A break would involve only a small area, together with the necessary access route.

Page F-4, para. 3

"It is recommended that no summer construction be allowed to take place and that compressor stations be built only during the winter

construction schedule. The failure of this recommendation is that it would require much greater time than is currently available to construct the compressor stations on a winter schedule."

RESPONSE:

Construction activities scheduled for summer months would be contained by and large, within the boundaries of the facility, and would have only limited impact. Flight restrictions for camp supply have been discussed in other testimony. Observations of caribou at Prudhoe Bay indicate that caribou, during their normal summer movements, are minimally, if at all, disturbed by development activities.

Page F-4, para. 4

"It is recommended that aircraft and construction activities be prohibited in the vicinity of the calving grounds and the post-calving aggregation. The failure of this recommendation is that situation which the applicants consider to be emergency situations would result in flying or construction activity regardless of the caribou sensitivity. Furthermore if they fly close to the coast they disturb bird populations, if they fly along land you disturb caribou populations. Whichever way one population or another will be disturbed."

RESPONSE:

The Company flight restrictions are for 2,000 ft. elevations

at all possible times (excluding emergencies), and in addition, flights will be routed around sensitive areas. Construction will be in winter, and conflicts noted above are unlikely.

Page F-5, para. 2

"Mr. Jakimchuk on page 14927 indicates that there is overwintering of caribou on the North Slope. The winter construction activity should be stopped if it conflicts with the overwintering. This suggests the North Slope construction scheduling is unrealistic as it does not provide for such contingencies."

RESPONSE:

Construction scheduling is realistic in consideration of wintering caribou, due to the fact that there is virtually no likelihood of detrimental conflicts between construction and caribou. The construction activities will be confined to a few miles at a time and the caribou are able to move freely over the entire winter range so as to avoid conflict, if they so desire.

Page F-5, para. 3

"Dr. Bergerud, on page 16757, states that the applicants did not thoroughly investigate the whole topic of insect relief. His contention is that those yearlings travel some distance to get to Camden Bay where he argues there is a lower population of insects and less harassment. His argument is that the additional week or

two or relief from a nutritional standpoint may be crucial to the caribou. The problem here is that the nutritional state of the animal needs to be considered in terms of its whole pattern of life. We recommend that no aircraft or construction activity be permitted in this area while caribou are there."

RESPONSE:

Aircraft activities will be kept to a minimum if it is found that they are disturbing wildlife.

Page F-8, "Socio-Cultural Impacts"

RESPONSE:

The impacts which are discussed in this section relate to alcohol, mental health, school drop outs and out migration have been responded to earlier under the heading "Interior Route".

Dealing with the essence of the two recommendations at the top of page F-10, Arctic Gas had indicated that it would have policies which would be consistent with these recommendations.

As discussed above, under the heading "Interior Route", Arctic Gas feels that the question of the extent to which service personnel are available to the community is dependent, in part, upon the extent to which additional services, and thus skilled service personnel, are required in the community during the pipeline construction period.

Arctic Gas does not expect to put any increased demands on the local services of Old Crow.

Page F-15, "Economic Impacts"

RESPONSE:

Arctic Gas has responded earlier in this material to the comments made in this section.

Dealing with the additional recommendation that "the Applicant provide training in various business practices to a variety of people in Old Crow so that they develop the entrepreneurial skills (needed)", this seems like a matter which should be the responsibility of government.

Page F-18, "Access and Corridor Concept"

RESPONSE:

Arctic Gas has presented evidence and argument to the Inquiry on routing and the corridor concept. This material has indicated that there is very little likelihood of an oil pipeline across the north slope of the Yukon.

Page F-21, para. 2

"a) That the applicants be required to undertake long term analysis of all of the access routes and the corridor

concept.

- b) That each airstrip, borrow pit, wharf and staging site be subject to specific application and approval."

RESPONSE:

Each of the access roads, staging sites, compressor station sites, etc., will be subject to site-specific examinations when they are precisely located, as will construction and operations plans and schedules.

Page F-23, para. 2

"That if a pipeline is to be constructed on the Prime Route, a snow road test facility and research into snow collecting methods be undertaken to demonstrate conclusively that snow roads can be constructed without environmental degradation."

RESPONSE:

Arctic Gas is of the view that the snow road tests conducted at Inuvik proved that there was no environmental degradation using the methods of construction proposed by Arctic Gas. Further experience is available from snow roads used in exploration and further snow collection research is continuing in northern Yukon and Alaska.

ENGINEERING/GEOTECHNICAL FACTORS

A. Snow Roads

Page G-1, para. 1

"We recommend that an on-site test of proposed snow road construction practices, use and procedures be conducted along the North Slope of the Yukon prior to the construction of any North Slope pipeline."

RESPONSE:

The use of snow roads is common practice in the Mackenzie Delta and on the North Slope of Alaska. CAGPL have conducted snow road tests in the Inuvik area and its construction plan is based on utilizing snow roads for pipeline construction on the section from Richards Island south for 2 years prior to constructing the pipeline section along the Yukon North Slope. Snow roads will be constructed on the Yukon North Slope between certain facilities 1 year prior to pipeline construction. We feel that this extensive utilization will be sufficient proof that the required snow roads along the Yukon Coastal Plain will be technically feasible and environmentally acceptable, and feel that site specific tests on the Yukon North Slope are not required.

Page G-2, para. 2

"We recommend that the monitoring agency be the agency which determines the shut-down period on the use of snow roads. At the first indication of deterioration of snow roads, the road system and the whole operation would be shut down for the summer."

RESPONSE:

We agree that the monitoring agency should determine the shut-down period on the use of snow roads, provided that the criteria used for shut-down are acceptable. The whole operation should not be shut-down for the summer at the first indication of deterioration of snow roads (this could occur during a brief warm spell in mid-winter), but rather when the snow roads have deteriorated to the point where damage to the terrain would result if operations were continued.

Page G-3, para. 3

(portion)

"We recommend that a detailed research program be conducted to determine the potential impacts of harvesting snow upon small lakes which do and do not support fish populations. Further, we recommend that specific plans be set out to demonstrate the method of establishing snow fencing, the location of snow fencing, the harvesting procedure of collecting snow from snow fencing areas and that actual on-site tests be conducted to demonstrate the environmental integrity of the proposed snow collection methods."

RESPONSE:

We agree, in principle, with this recommendation. We intend to seek advice from environmental consultants regarding the potential impact of harvesting snow from lakes and thus potentially increasing the ice thickness. A substantial amount of data have already been gathered on lakes along the Yukon North Slope. Snow fence testing is being conducted on the

Yukon North Slope during the winter of 1976-1977. We suggest re-wording this recommendation as follows:

ALTERNATIVE RECOMMENDATION:

3. We recommend that environmental experts be consulted to determine the potential impacts of harvesting snow upon small lakes which do and do not support fish populations. Further, we recommend that plans be set out regarding the method of establishing snow fencing, the general location of snow fencing, and the harvesting procedure of collecting snow from snow fencing areas.

Page G-4

(portion)

"We recommend that snow road construction along the North Slope not be undertaken until a set of minimum criteria in terms of snow fall, in terms of caribou movement and other environmental considerations be met."

RESPONSE:

We would agree with this recommendation provided that the criteria referred to are acceptable.

ALTERNATIVE RECOMMENDATION:

4. We recommend that snow road construction along the North Slope not be undertaken until a set of mutually agreeable minimum criteria, in terms

of snow fall, caribou movements and other environmental considerations are met.

Page G-5.

(portion)

"We repeat our recommendation that an adequate on-site test be conducted on snow road construction and that the monitoring agency analyze these problems in detail so that the feasibility of the schedule may be accurately and sensibly assessed.

RESPONSE:

The use of snow roads is common practice in the Mackenzie Delta and on the North Slope of Alaska. CAGPL have conducted snow road tests in the Inuvik area. The CAGPL construction plan is based on utilizing snow roads for pipeline construction on the section from Richards Island south for 2 years prior to constructing the pipeline section along the Yukon North Slope. Snow roads will be constructed on the Yukon North Slope between certain facilities one year prior to pipeline construction. We feel that this extensive utilization should be sufficient proof that the required snow roads along the Yukon Coastal Plain will be technically feasible and environmentally acceptable, and feel that site specific tests on the Yukon North Slope are not required.

Page G-5.

(portion)

"We also recommend that a thorough investigation be made of the impact

of two consecutive years of snow road construction and construction from snow roads."

RESPONSE:

Data are currently available from petroleum exploration companies on the Mackenzie Delta regarding the impact of two consecutive years of snow road construction. This data indicates that properly constructed snow roads, utilized for two consecutive years, do not cause unacceptable environmental damage. We do not feel that further investigation in this area is required and thus this recommendation is unnecessary.

Page G-6.

"In our view, the most suitable conditions allow for the utilization of the snow road in late November with a shut-down occurring through December and January during the dark periods. Some of the problems that have not been dealt with specifically by the applicant which from our standpoint could cause some complications are problems of logistics in terms of reorganizing the work force and getting them back into the north at the beginning of pipeline construction. And secondly, the productivity of this work force during the shuffling and reshuffling periods and the acclimatization period required. We recommend that adequate planning of a potential second year of construction be outlined.

RESPONSE:

While we agree that adequate contingency planning is necessary,

we do not agree with the view of a shut-down occurring through December and January during the dark periods and thus this recommendation is unnecessary. The Arctic Gas construction plan recognizes and takes into account the logistical exercise of mobilizing and demobilizing the work force.

Pages G-5 and G-6.

"There is no adequate information on how the snow roads will stand up under heavy loads, nor has there been adequate information on how the roads stand up to grading, nor has there been adequate research done on the effects an oil burn would have if it falls on the snow road surface. These problems related to the use and maintenance of snow roads demand a great deal of consideration, particularly on the Interior Route where grades will present problems when under constant pressure from vehicles requiring traction. In our view, the testing has not been adequately done on these kinds of issues. We recommend that each of the areas mentioned above be thoroughly investigated and that a snow road test be conducted on the Interior Route, if that route is selected."

RESPONSE:

As mentioned in the response to recommendation #1, we feel that all aspects of snow road construction and maintenance will be investigated prior to construction in the Yukon, and that site specific tests need not be conducted. Consequently this recommendation is unnecessary.

2. Frost Heave

Page G-10.

"We recommend that the whole process of frost heave should be examined both in a theoretical context and in an on-site long term testing basis. Furthermore, we recommend that the applicant undertake more than one design of under river crossings to ensure that these systems of under river crossings will not impede or potentially disrupt overwintering fish populations"

. . . . We also recommend that the applicant examine a variety of means of surcharging the pipe or a variety of methods of reducing the pressures of frost heave"

RESPONSE:

The level of data required and depth of examination necessary for final designs should be left to the Company and the Agency. More than one design at river crossings will not guarantee that the pipeline "will not impede or potentially disrupt overwintering fish populations". Review of the proposed design by the Agency has been accepted and is about as far as one can go. Geophysics and drilling will be conducted along the prime route as part of final design. No construction or testing beyond this is necessary or desirable. See Response to Commission Counsel, Pipeline and Facilities, Geotechnical Considerations, and Frost Heave.

3. Slope Stability

RESPONSE:

See Arctic Gas response to Commission Counsel's submission, "Pipeline and Facilities", "Geotechnical Considerations", and "Slope Stability".

4. Winter Construction

RESPONSE:

See Mr. Marshall's oral argument contained at pages T:201-31781 to 31798.

NATIONAL INTEREST (p. H-1)

As the Inquiry has recognized previously, the question of whether the pipeline is in the national interest is to be determined by the Government of Canada after considering the various interests of all of the people of Canada which could be affected by the construction and operation of the pipeline. One matter which should be clarified is the statement that the Arctic Gas proposal is "essentially an American proposal to transport American gas through Canada". Unlike the Alcan, or Yukon, pipeline proposal, the Arctic Gas proposal will carry significant quantities of Canadian natural gas to Canadian markets to meet anticipated natural gas shortages in those markets.

ALTERNATIVE CORRIDORS (p. I-1)

RESPONSE:

See Arctic Gas oral argument and Response to Commission Counsel, Pipeline and Facilities, Location and Routing.

SINGLE AGENCY MONITORING (p. J-1)

RESPONSE:

See Response to Arctic Gas Response to Commission Counsel, "Project Regulation", and that portion of the Arctic Gas agreement which is found at T:200-31699-31706.

NORTHERN DEVELOPMENT (p. K-1)

While this comment and recommendation appears to be directed at the Federal Government, we would like to make two observations on the statements contained in this section.

In the second paragraph on p. K-1, the priorities of the Federal Government with respect to northern development type projects is stated. "Its first priority is to provide for a higher standard-of-living, quality of life and equality of opportunity for northern residents by methods which are compatible with their own preferences and aspirations". With respect to the first half of this statement, it is obvious from the testimony of many witnesses, including Dr. Watkins, that only a major development activity has a potential for raising the standard-of-living, quality of life and equality of opportunity of northern residents. With respect to the second portion of this quotation, it is apparent that the preferences and aspirations of native people should be informed preferences and aspirations. We have already noted earlier, the contradiction between the assertion in this submission that most of the young people of Old Crow now go on to Whitehorse for high school training and the implication that most people want to continue to live by harvesting land resources and obtaining cash income from seasonal or part-time employment. It must be agreed that any adequate concern for the future residents of the community of Old Crow and the kinds of employment in which they will increasingly be interested, will necessitate advocacy of further economic development. This, of course,

should not be taken as inferring that interest in harvesting the resources of the land will necessarily fade away.

Also it should be observed that the seeming inconsistency between the stated objectives of the Federal Government and the actions and practices of the Federal Government may be understood if one makes the assumption that the Federal Government does have the necessary breadth of perspective with respect to the future of northern residents. Northern development is the only way of ensuring the increased standard-of-living, increased quality of life and increased opportunity of northern residents.

BURDEN UPON APPLICANTS (p. L-1)

These matters were dealt with in the evidence and argument presented to the Inquiry by Arctic Gas.

COMMENTS ON THE SUBMISSION OF THE
GOVERNMENT OF THE NORTHWEST TERRITORIES

Arctic Gas welcomes the response of the Government of the Northwest Territories to Commission Counsel's submission. Any socio-economic terms and conditions would be doomed to failure without substantial cooperation from the Territorial Government in their formulation and implementation.

Arctic Gas is in general agreement with the Government's position as reflected in their written response to Commission Counsel Submission. We think it is especially significant that these views are consistent with those of Arctic Gas on the allocation of costs (refer to Arctic Gas' response to Commission Counsel under the heading "Action Communities - Impact Funding") and the regulation of socio-economic concerns (see Arctic Gas' final argument T. 200 - 31699-31707).

One recommendation on which Arctic Gas differs from the Government of the Northwest Territories is on the availability of liquor in construction camps. Our position on this issue is outlined in our comments on Commission Counsel's submission under the heading "Action Communities - Alcohol."

RESPONSES TO THE SUBMISSION OF THE
MENTAL HEALTH ASSOCIATION OF THE NORTHWEST TERRITORIES -
CANADIAN MENTAL HEALTH ASSOCIATION

GENERAL:

In preparing this response to the Association's submission, Arctic Gas has followed the Association's summary of recommendations which was filed with the Inquiry on November 10, 1976.

RECOMMENDATIONS

"1. The settlement of land claims prior to the start of construction on the Mackenzie Valley Pipeline. The land claims are central to the aspirations of the native people of the N.W.T., and the attainment of an equitable settlement is indispensable to the good mental health of all Territorial people."

RESPONSE:

Arctic Gas has stated its position on land claims and the effects of the indefinite delay of pipeline at Pages T:200 - 21655 to 31681 of the transcript.

"2. Second the association is of the opinion that the existing timetable for the commencement of pipeline construction is inappropriate and furthermore the period of time allotted for construction is entirely too short to allow people to accommodate themselves to

to the speed of changes that will take place. Our position is, that if the present timetable is accepted as given, it would be a lesser evil to have the entire operation conducted in complete isolation of the people and the communities of the Territories, than to experience the impact it would otherwise bring. Figuratively speaking, the best condition in this eventuality would be the construction of a fence around the entire operation. We recommend instead, a moratorium of two years to be set aside between the date of approval to build and the actual start of the clearing and staging operations preparatory to construction. During this moratorium, government and the people would have the opportunity to seriously prepare for the development, and to undertake various preventive programs. We further recommend that the construction phase be extended from its present timetable to a minimum period of five years. It is our belief that a great deal of the destructive impact can be lessened by adopting a timetable which allows for orderly less rapid development."

RESPONSE:

Arctic Gas submits that those portions of this recommendation which suggest that the commencement of construction be delayed and that the construction phase be extended are not supported by the evidence presented to the Inquiry. The Arctic Gas position on the impacts on the people in the Region are well known and are summarized in the Arctic Gas oral argument found in Volumes 200 and 201 of the transcripts. Particular references should be made to the Arctic Gas responses to Commission Counsel's

submissions under the headings "Fears of Interference with Native Resource Harvesting" (p. I-2), "Native Society - Traffic to Communities" (p. I-14) and "Native Society - Access to Communities" (p. I-15).

The alternative of having the entire operation conducted in complete isolation from the people, while probably being feasible from Arctic Gas' point of view, has not been shown to be satisfactory in other regions. Such an approach was tried in Greenland with the consequence that after several years there was strong bitterness on the part of Greenlanders who had not received the economic opportunities that accompanied the development. Accordingly, the long range consequence of such an approach could be a considerable increase in hostility on the part of native people towards white workers and white policy makers.

As officials from the Territorial Government and DINA told the Inquiry, the many departments of government are even now doing contingency planning with respect to the commencement of construction of the pipeline. A number of the communities (e.g. Inuvik and Hay River) are also engaged in such planning in order that orderly development can take place with minimal impact on the people in the region.

"3. A number of additional measures will be required of Government to preserve and promote the mental health of Territorial residents. We urge you to recommend that Health and Welfare Canada transfer responsibility for all Health Services to the Government of the N.W.T. Bringing authority and responsibility for Health Services to the Territories is vital to the provision of an effective and responsible physical

and mental health program. It is understood that special consideration and attention must be given to native groups who wish to negotiate separately with the Federal Government, because of their previous agreement under the 'Medicine Chest' clause."

RESPONSE:

This is a matter to be responded to by government.

"4. Clear, undebatable lines of authority for all phases of construction must be established, including regulatory responsibility and enforcement. As a general principle, establish mechanisms to allow local communities the decision making power about health and social programs.

a. Develop and pass Community Mental Health Centre Legislation similar to the State of Alaska.

b. Create a Co-ordinating body of all social and health operational supervisors empowered to temporarily shift or reallocate personnel equipment or funds in the event of program imbalance.

c. Create through legislative appropriation, Social and Health Impact Funds to be distributed through application by a special representative council chosen by the electorate consisting of both providers and consumers from pipeline corridor communities.

d. Immediately establish an information gathering system regarding health and social services casualty data, community social parameter in divorce rate, suicide, juvenile arrests, school drop out rate, etc.

e. Expend every effort to assist government, local communities, and oil companies to engage in collaborative planning dialogue.

f. Establish an interim funding mechanism to enable the immediate training of a cadre of indigenous mental health paraprofessionals. "

RESPONSE:

The Arctic Gas position on the establishment of an effective regulatory agency is contained at T: 200 - 31699 to 31708.

With respect to the suggestion that local communities be allowed decision making power about health and social programs, this a matter which was dealt with in the Arctic Gas response to Commission Counsel's submission under the heading "Action Communities - Organization of Local Government".

The sub-paragraphs of this recommendation are matters which should be considered by government.

"5. The shortfall in Mental Health services and facilities must be addressed immediately, and a residual capacity must be included to provide for the additional demands created by development. The planning and creations of facilities and services would take all of the time which the moratorium would provide."

RESPONSE:

This is a matter which should be considered by government.

"6. We recommend that the Council of the Northwest Territories put in place a Community Mental Health Ordinance, modeled on that which is in force in Alaska. This legislation should create a separate Division of Mental Health Services within the Territorial Government, to ensure that a continued and high priority is placed in the mental health area. The legislation which we advocate would vest the responsibility and authority for the development of mental health services in the communities. The legislation would provide for liberal funding to enable community groups and organizations to design and operate broadly based adult education activities, preventive and remedial mental health services and so forth. Predominantly native communities would undoubtedly employ people who spoke their language and were familiar with local mores and traditions. The present system which seeks only 'native input' into service delivery, would take a fundamental shift, that being to a 'professional input' into native service delivery."

RESPONSE:

This is a matter which should be considered by government.

"7. Mental Health facilities in southern centres, particularly in Edmonton and Calgary, must be improved to accommodate and treat transients and pipeline workers who will be subjected to stresses as well. As a general principle we believe non-residents should be provided with services outside the Territories near family and friends."

RESPONSE:

This again is a matter to be considered by government but it does accord with the Arctic Gas policy that southern workers who get into emotional difficulties will be taken to their point of hire for treatment of those difficulties (T: 161 - 24802).

"8. Measures must be taken by government to discourage transients from entering the Territories in search of pipeline jobs. An extensive public education program was met with some success in Alaska and should be conducted in Canada as well."

RESPONSE:

This recommendation is in accord with the Arctic Gas policy on this matter (T: 161 - 24800 to 24801).

"9. Various governments, in training Northerners for hydrocarbon jobs, should offer training programs only for those skills which are applicable in the operations phase. The possibility of a 'bust' following the construction 'boom' must be minimized."

RESPONSE:

The second sentence of this recommendation is in accord with Arctic Gas stated policy. The first part of Recommendation #9 "various governments, in training northerners for hydrocarbon jobs, should offer training programs only for those skills which are applicable in the operations phase" seems unduly restrictive since there are certainly a variety of jobs such as carpentry jobs, electrician jobs, plumbing jobs and general

maintenance jobs and bulldozer and truck operator jobs which would require acquisition of skills which do not have explicit relevance to the operations phase of the pipeline but for which there would be continued strong demand in the North after the pipeline construction period was over.

"10. We urge you to recommend that law enforcement and security be done either by the R.C.M.P. or under the direction of the R.C.M.P., within and outside the camps. We believe this is central to the maintenance of order and justice during the development."

RESPONSE:

This recommendation is in general agreement with stated policy of Arctic Gas.

"11. Persons on fixed incomes must be protected by government. We recommend the creation of an indexed guaranteed income for persons on fixed incomes."

RESPONSE:

This is a matter to be considered by government.

"12. Governments must provide additional money to organizations delivering essential services to ensure that they are able to keep salaries competitive with hydrocarbon jobs."

RESPONSE:

This is a matter to be considered by government.

ADDITIONAL RECOMMENDATIONS

"1. The companies must consult with the communities before final decisions are made concerning the siting of camps and staging areas. Community Councils must have the right to specify whether, and under what conditions, camp personnel may visit particular communities."

RESPONSE:

The response to this recommendation forms part of Arctic Gas' response to Commission Counsel's Submission (see Native Society - Access to Communities p. I-15 and T: 162 - 25045 to 25055).

"2. The companies must make provisions for screening out undesirable southern employees and persons who might have difficulty adapting to the northern working environment. In this regard the psychological and medical testing used for DEW Line personnel might be a model for application. Southern hires should be provided with an orientation program to ensure that they have a sensitivity to the way of life in the N.W.T., prior to taking employment."

RESPONSE:

Arctic Gas procedures for indoctrination, orientation and testing of southern hirees was described at T: 160 - 24800 to 24801. Part of that process includes an orientation program designed to familiarize southern workers with the northern life styles and culture and to develop an understanding of northern people.

"3. Local hires must be given preference in the construction phase jobs, where skills acquired might be transferable to the operating phase."

RESPONSE:

The Arctic Gas position on local hiring in preference to southern hires for the construction phase was described by Mr. Hollands at T: 161 - 24819 to 24820.

"4. An obligation must be placed on the companies to 'blue ticket' southern employees who leave their employment or are fired."

RESPONSE:

If 'blue ticket' means returning a fired or resigned southern employee to his point of hire in the south, then this accords with the Arctic Gas position.

"5. The companies should provide an orientation program for locally hired people to ensure they are aware of the working and living conditions they will face in pipeline camps."

RESPONSE:

Arctic Gas would provide the suggested orientation program. (See T: 161 - 24820 to 24821).

"6. Rest and recreation periods must involve the mandatory repatriation of the worker to his point of hire, whether that be within or outside of the N.W.T."

RESPONSE:

Arctic Gas described its policy on rest and recreation period transportation arrangements at T: 163 - 25185 to 25186 and these are in general agreement with the one suggested.

Dealing with the recommendations on regulatory agency, as noted early in response to the first recommendation numbered 4, Arctic Gas strongly supports the concept of a single regulatory agency with the necessary mandate to effectively regulate the pipeline construction activities.

COMMENTS ON FINAL ARGUMENT OF THE
METIS ASSOCIATION OF THE NORTHWEST TERRITORIES

GENERAL:

Arctic Gas is in general agreement with the points of view expressed by the Metis Association in their "Notes for Final Argument" filed with the Inquiry on November 19, 1976. As recommendations included in the Final Argument were not numbered, portions commented upon have been written out.

Page 1 - "...a settlement should be made between the native people of the Northwest Territories and the Federal Government before construction of the Mackenzie Valley Gas Pipeline."

RESPONSE:

Arctic Gas supports the Metis position that "a settlement should be made" but disagrees with the need to do so prior to construction. Arctic Gas believes that pipeline construction will not prejudice the claims of any of the native groups. (See T: 200 and T: 201 - 31635 to 31721-2).

Pages 4 & 5 - "...the settlement...would ensure our success in the future."
"...emphasis will be on developing structures and assisting individuals to take part in the developments occurring in the North today and in the future."

"We therefore, look to the construction of the pipeline as one of the major economic projects which we wish to take part in."

RESPONSE:

Arctic Gas has made commitments to aid native and non-native northerners to participate in project-related business. It should not be necessary to delay construction until the framework to do so is in place.

Page 6 - "...only a minimal number of years are necessary from the time a settlement is made with native people to the time a pipeline is started."

RESPONSE:

See comment respecting Page 1, above.

Pages 7 & 8 - "You should take the practical and conservative view and consider seriously the possibility that the Federal Government may not be prepared to make a settlement with the Native people by the time construction of the pipeline is started. As stated earlier, too much emphasis is placed on the likelihood of there being a land settlement with the Native people before a pipeline is started. Your final report should place a great deal of emphasis on this possibility and make appropriate recommendations. The Federal Government looks to you for specific, definitive guidance."

RESPONSE:

Arctic Gas agrees with this recommendation.

Page 11 - "So we plead with you to firstly recognize the Metis people as a distinct part of Native Society and in your description of Native Society to be realistic in your views as to the Native people's way of making a living."

RESPONSE:

Arctic Gas agrees with this recommendation.

Page 12 - "We therefore conclude that in your report to the Federal Government you should be realistic about economic matters and make recommendations which take into consideration the type of businesses that Native people want as well recognizing the need for an economic climate in which such Native businesses are likely to succeed."

RESPONSE:

Arctic Gas agrees with this recommendation.

COMMENTS ON FINAL ARGUMENT OF THE
NORTHWEST TERRITORIES ASSOCIATION OF MUNICIPALITIES

GENERAL

In preparing these responses to the Association's recommendations, Arctic Gas has used, and all references herein are to, the Association's written summary of recommendations which was distributed prior to the Association's oral argument made to the Inquiry.

A. ECONOMIC AND POLITICAL DEVELOPMENT

Recommendations

1. "The pipeline decision should be made quickly.
2. The decision should be for approval. There should be no moratorium on resource development in the Mackenzie Valley."

RESPONSE:

Arctic Gas concurs.

3. "Resource development can provide the means of achieving economic self-sufficiency for the people of the N.W.T. A portion of royalties must accrue directly and unconditionally to the Territorial Government general revenue fund to enable the funding of Territorial and municipal services and to enable the Northern people to share in their resources."

RESPONSE:

Arctic Gas has spelled out its position with respect to revenues which will flow to governments from the project in its response to the Commission Counsel's submission on "Action Communities - Impact Funding".

4. "The Axe Point facility should not be built."

RESPONSE:

Arctic Gas has concluded that it is necessary to participate in the expansion and development of port facilities at Hay River so that it can become our major northern staging area. However, restricting the northward flow of all materials through a single location will not provide it with the operational reliability necessary to efficiently construct the project. For this reason a second staging facility will be required.

Axe Point was selected as the site for this second facility due to its desirable location on the river and the comparative ease with which the site can be prepared. In addition, Axe Point is an area which has been previously disturbed.

Arctic Gas has planned for the installation of temporary facilities only, and has indicated its willingness to remove any or all of these facilities when we are finished with them, if it is deemed desirable by government.

5. "The municipal form of local government should be supported and strengthened, with involvement from native members of communities being encouraged. The municipal model should not be forced on communities not wishing same."

RESPONSE:

Arctic Gas concurs.

B. ROYALTIES AND TAXATION

Recommendations

1. "A significant proportion of resource revenues should be retained in the N.W.T., on an unconditional basis.
2. a) Revenues from a 3% royalty on all non-renewable northern resources be placed annually into a "Quality of Life Improvement Fund". Quality of Life Improvement Funds would be utilized in two ways. Firstly, funds would be utilized to achieve a reduction in energy costs throughout the N.W.T., to a level equal to the average energy cost reduction which is experienced by communities which can be economically supplied with natural gas. Secondly, residual funds would be distributed, through local governments on a per-capita basis, for financing of projects or programs intended to improve the quality of life in the north in accordance with local perceptions of needs and priorities.

Funding through the Quality of Life Improvement Fund must in no way be offset through funding reductions to existing programs.

b) It is recommended that the Federal Government share northern generated resource revenues with the Territorial Government on the basis of a mutually agreeable formula, and that Territorial revenues so derived be placed into the General Revenue Fund of the Territorial Government.

3. Maintain present municipal taxing powers on pipeline facilities located within a municipality.

Assessment rates should be increased to 2/3 of face actual value.

4. A throughput tax should be collected and paid to the N.W.T. Government."

RESPONSE:

Arctic Gas has spelled out its position with respect to revenues which will flow to governments from the project in its response to the Commission Counsel's submissions on "Action Communities - Impact Funding".

C. NORTHERN GAS SUPPLY AND ENERGY POLICY

Recommendations

1. "Funding should be provided to municipalities to enable up-to-date and detailed analysis of natural gas distribution to municipalities.
2. a) It is recommended that, as a condition of construction approval, the Applicant be required to construct, operate, and maintain branch

feeder lines from the main trunk pipeline to communities that can be "economically" serviced with natural gas and which request such a service. For the purposes of the foregoing, an "economic" community shall be defined as a community which can properly indicate an economic advantage through the use of natural gas within the first five years of system operation.

b) It is further recommended that similar Terms and Conditions as stated in Recommendation (a) be attached as a condition to gas production permits in the Northwest Territories. By doing so, communities located in close proximity to gas well clusters, gathering lines, gas-processing plants and minor transmission lines may be given the opportunity to obtain an alternate energy source.

c) It is recommended that each municipality be given the option of constructing and operating its own gas distribution utility or granting a franchise for same to a private company.

d) It is recommended that the powers of the existing Territorial Public Utilities Board be expanded to include control of gas utilities.

3. Land for gas facilities should be set aside.

4. Gas-related training programs should be developed.

5. Gas policy should be part of an over-all northern energy policy, as gas could enable a reduction in other energy rates."

RESPONSE:

Arctic Gas has indicated its position on the issue of northern gas supply and energy policy in evidence (T: 163 - 25250) and in responses to Commission Counsel's submission under the heading "Native Society - Energy Supply to Native Communities". Recommendations 2(d), 3, 4 and 5, are matters for government response.

D. PLANNING

Recommendations

1. "A small organizing committee should be formed to coordinate construction projects. Coordinating committee consisting of pipeline company, municipalities, crown corporations and government agencies."

RESPONSE:

Arctic Gas agrees with the objective of this recommendation, however, a special committee will not be necessary since during the course of normal liaison with government and communities, it will be providing the information necessary for effective planning and coordination.

2. "In order to provide for greater control, municipalities should have development control within a 50-mile radius of each municipality. No development should be undertaken within this area without the approval of the municipal council."

RESPONSE:

The extent of municipal control over development, whether in the

community or nearby, is a matter for resolution between the various levels of government involved.

E. TRANSIENTS

Recommendations

1. "Required implementation of current CAGPL policy regarding construction camp isolation should be made a condition of approval for pipeline construction.
2. All hiring of non-Territorial residents for construction and related activities should be undertaken only at "points of hire" south of the 60th parallel.
3. All "leaves" and "job terminations" should include transportation back to original "point of hire".
4. Supervisory and other permanent staff and suppliers, should be located in established municipalities, with no permanent satellite communities being established."

RESPONSE:

Arctic Gas concurs.

5. "For purposes of elections, the definition of "northern resident" should remain unchanged. For purposes of employment, a "northern resident" should be defined as one who actually resided full-time in the North-

west Territories at the date approval of pipeline is given. Northern residents should be given priority for training and jobs both in construction and operation phases."

RESPONSE:

Arctic Gas' response to the portion of this definition for employment is contained in our comments on Commission Counsel's submission under the heading "Terms and Conditions for Employment and Training."

F. TRANSPORTATION

Recommendations

1. "Planning by government and industry should be carried out in conjunction with municipal representatives.
2. The use of the barge system, wharves, air carriers, and highways should not interfere with the needs of Northern residents. (Existing carriers should, however, be utilized as much as possible.)
3. The separate facilities constructed to serve the successful applicants transportation needs should be established with long-term municipal needs in mind."

RESPONSE:

Arctic Gas concurs.

4. "The successful applicant should not use the municipal roads or borrow pits during the construction phase."

RESPONSE:

This stipulation is unnecessarily restrictive. The objective should be to protect residents from undue disturbance, disruption of services, or financial expenditures, and to protect future availability of borrow resources for community use. Arctic Gas has undertaken to construct its project in such a manner as to not place strain on community facilities and resources, but it would be impossible to avoid using roads altogether in municipalities such as Hay River, for example.

5. "Traffic restrictions and increased federal funding for dust control and maintenance of highways, with a control procedure for the movement of heavy equipment and compensation for damages."

RESPONSE:

This is primarily a matter for government response, however, Arctic Gas fully intends to pay adequate compensation for any private or public facilities damaged by construction activity.

G. HOUSING

Recommendations

1. "A unique northern building code is required.
2. C.M.H.C. specifications should be altered to take northern construction methods (e.g. log houses) into consideration.

3. Interest-free loans for development and land assembly projects should be provided.
4. Government housing should be provided for locally hired persons.
5. Extra funding should be provided for public housing and single persons accommodation.
6. Municipalities should receive all units promised by N.W.T. housing corporation.
7. Ceiling on C.M.H.C. mortgages should be raised.
8. Extra-ordinary funding should be made available to reduce the user charges on municipal services."

RESPONSE:

A matter for government response.

H. RECREATION

Recommendations

1. "It is recommended that the successful applicant's involvement in the provision of recreational facilities in northern communities be limited to the provision of appropriate funding, the application of which will be determined by a local recreational board upon which the applicant shall have representation."

RESPONSE:

It is the position of Arctic Gas that the nature and extent of our participation in the recreation programs of communities be determined by consultation with the community concerned, the N.W.T. Government and other major employers, and be based on a "fair share" principle. Please refer to our response to Commission Counsel's submission under the heading "Action Communities - Recreation".

2. "a) Recreation staff at the Territorial Government level should be kept as small as possible with greater emphasis on recreation leaders at the local level.
- b) There should be a greater emphasis on the coordination or recreation facilities with the Department of Education through cooperation in the building of facilities and through the joint use of existing facilities.
- c) The cost of utilities for recreational facilities be borne by the Territorial Government.
- d) 80% of the cost of a Recreation Director's salary should be borne by the Territorial Government. In cases where an individual recreation director is not hired at the local level such a grant should be available for purposes of recreation leadership.
- e) The \$5.00 per capita recreation grant should be increased in line

with the inflationary cost of living increases.

f) A local parks grant should be instituted. This grant would provide funding on a matching dollar for dollar basis to a maximum of municipal population for purposes of developing small neighborhood parks.

g) Assistance for the construction of recreational facilities should be provided by the Territorial Government through the Department of Education guaranteeing the use of recreational facilities by its schools for a specific number of hours each week or month.

3. Grants should be available for transportation to competitions.

4. Funding, staff, and lead time is needed to develop:

Local Leadership

Local programs oriented to the individual

Basic community facilities."

RESPONSE:

A matter for government response.

I. PROTECTION SERVICES

Recommendations

1. "By-law Enforcement

a) by-law officers should be trained by R.C.M.P.

- b) municipalities should be involved in police requirements planning at all levels
- c) more R.C.M.P. needed.

2. R.C.M.P.

- a) municipalities should be consulted and invited to participate in R.C.M.P. contract negotiations
- b) local by-law enforcement officers should be trained by the R.C.M.P.
- c) grants should be provided to municipalities for by-law enforcement personnel
- d) R.C.M.P. contract should be designed specifically for the North.

3. Fire Protection

- a) Fire Marshall's staff and budget should be greatly increased
- b) fire prevention ordinance should be upgraded
- c) more instructional literature should be in native languages
- d) effective fire prevention campaigns should be aimed at the public."

RESPONSE:

A matter for government response.

J. MUNICIPAL FINANCING

Recommendations

1. " Extraordinary impact funding must be made available on an unconditional basis, firstly by Ottawa to the Territorial Government, and then in turn by the Territorial Government to the municipalities. The expansion of facilities to facilitate a pipeline must not be left for the ratepayers to pay for long after the requirement for the services has gone.

A cooperative system will be of great necessity between the 3 levels of government to offset the high cost factor to be encountered by the municipal government.

- A
 1. higher proportion of Territorial and Federal cost input into municipal projects.
 2. increase in availability of long term financing with lower interest rates
 3. establish an excellent line of communication with other levels of government for negotiations.
- B
 1. not only an increase in per capita grants but also for a per capita grant to be allocated to other sections of the municipal budget, i.e. protection to persons and property, health, utilities, etc.
 2. a better cost sharing basis with a forgiveness in previous debts incurred on specific projects.

3. an improved royalty benefit to the municipality from the local natural resources being used.

C Extraordinary capital financing (federal/territorial) will be required for

1. establishing and developing a source of granular material for:

- a) land development (residential)
- b) land development (commercial)
- c) land reclamation

2. upgrade and expand

- a) sewerage treatment facilities
- b) garbage disposal sites and possibly system (incinerator)

3. environmental impact studies

- a) drainage
- b) pollution

4. expansion of trailer court facilities

5. recreational facilities

D 1. NHA land assembly financing

2. expansion federal government grant-in-lieu of taxes to assist land development and development services

3. accelerated participation of housing programs by NWTHC and CMHC
4. need to attract developers for commercial/apartment projects

E Industrial input:

1. necessity to impose a municipal road tax by major users
2. provision of adequate housing major pipeline developers
3. assistance in trailer park development through purchase and maintenance of permanent trailer park facilities

2. The individual municipal ratepayers cannot be subjected to an escalation in tax load due to the pipeline impact.

a) It is recommended that the rate of increase of annual average per capita tax load in any community should be limited to the average rate of increase of per capital tax load experienced by that community during the period 1967 through 1976. It is further recommended that any shortfall in revenue occasioned by application of the foregoing formula shall be recovered through an appropriate increase in the operating grant provided to the municipalities by the Territorial Government.

The foregoing limitation of per capita tax load increases should be applied during, and for two years subsequent to pipeline construction. If at that time it is found that any community is experiencing an

operating deficit, then the per capita tax load should be increased at such a rate that the deficit (and the concomitant requirement for extraordinary grants) will be eliminated over a period of five years.

b) It is recommended that a formula similar to that recommended in (a) above be applied to limit the rate of increase of utility service charges over the same period.

Short term requirements for services and facilities should not be paid over the long-term but should be financed by grants."

RESPONSE:

A matter for government response, however, Arctic Gas had made its position on this issue clear in our comments on Commission Counsel's submission under the heading "Action Communities - Impact Funding".

3. "Regarding per capita grants, census data should be rationalized and gathered to reflect highly transient populations and fast-growing municipalities. Population projections should be well-rewarded and updated on a continuing basis.
4. In addition to extraordinary funding, funding must be made available for implementation of existing territorial and federal grant policies.
5. Territorial government should ensure that sufficient debenture funds

operating deficit, then the per capita tax load should be increased at such a rate that the deficit (and the concomitant requirement for extraordinary grants) will be eliminated over a period of five years.

b) It is recommended that a formula similar to that recommended in (a) above be applied to limit the rate of increase of utility service charges over the same period.

Short term requirements for services and facilities should not be paid over the long-term but should be financed by grants."

RESPONSE:

A matter for government response, however, Arctic Gas had made its position on this issue clear in our comments on Commission Counsel's submission under the heading "Action Communities - Impact Funding".

3. "Regarding per capita grants, census data should be rationalized and gathered to reflect highly transient populations and fast-growing municipalities. Population projections should be well-rewarded and updated on a continuing basis.
4. In addition to extraordinary funding, funding must be made available for implementation of existing territorial and federal grant policies.
5. Territorial government should ensure that sufficient debenture funds

are available. Limits on debenture borrowing should be increased, and the amount of loan capital available should be greater. Capital required (i.e. other than outright grant monies) for extraordinary expansion of facilities should be provided interest-free.

6. Federal grants-in-lieu of taxes should be:

- based on territorial assessment basis
- paid promptly
- paid in the year in which the land was acquired."

RESPONSE:

A matter for government response.

RESPONSE TO THE SUBMISSION OF THE

NORTHWEST TERRITORIES CHAMBER OF COMMERCE

This argument comprises five pages of proceedings (T: 204 - 32294-98 inclusive) which contain the following recommendations:

1. Page 32297 - "From our perspective, our value judgment based on our knowledge and experience of northern residents' small businessmen, we would urge that you adopt a series of recommendations that would not preclude the development of a Mackenzie Valley Pipeline. We would also urge that this pipeline be approved prior to August, 1977, and if disapproval would be the course chosen by the government, that the northern residents be allowed to get on with the rest of their lives."

RESPONSE: Arctic Gas concurs.

2. Page 32298 - The recommendations included in the report filed earlier by the N.W.T. Chamber of Commerce are still applicable. This report is entitled:

"Inventory and Assessment of Businesses, Personnel and Equipment in the Mackenzie Valley and Yellowknife",

and is Exhibit #711 before the Inquiry.

The following comments have been prepared in response to the specific recommendations in that report:

II. Financial Problems and Recommendations

Page 9 Recommendations

- i. The government administered loan funds should be reviewed with a view of having their scope broadened as to provide for working capital financing.
- ii. The administration of these funds should be centralized to enable more rapid processing of all applications.
- iii. The loan limit of the Small Business Loan Fund should be increased to at least \$100,000 and this limit should be subject to periodic review.
- iv. The funding of the Eskimo Loan Fund should be increased to accommodate the growing interest in intreprenurial pursuits being demonstrated by the Eskimo people.
- v. The rates of interest on all three funds should be equalized and reflect a rate which is in accordance with that of a lender of last resort.
- vi. The Federal Business Development Bank should appoint a permanent resident representative in Yellowknife as to provide closer contact with northern businesses.
- vii. All of the Government Loan Funds and the FBDB should provide more follow-up service in the way of managerial counselling."

RESPONSE:

These recommendations all deal with subjects which are the responsibility of government.

III. Tendering and Administration of Contracts

Page 11 Tender Notices Recommendations

- " i. A system is required to ensure that all northern businessmen are made aware of contracts to be let at the local level in particular and the regional or Territorial level in general.
- ii. We emphasize that the initiative to create the bid depository must be taken by the private sector.
- iii. In the settlements which are too small to justify the maintenance of a sub-office of the bid depository, it is recommended that at least one, if not two, locations in the community be designated as tender information centres where tender documentation would be maintained.
- iv. It is further recommended that tenders should be advertised in the north prior to southern Canada, that northern bidders be given a longer period of time in which to prepare and submit their contract proposal, and that tenders be closed in the north at the bid depository."

RESPONSE:

Arctic Gas has responded to recommendations of a similar nature in Commission Counsel's submission on Northern Business - Construction Industry.

Page 12 Tender Notices Recommendations

- " v. Based on our compilation of businesses and their capabilities, a list of firms eligible for specific contracts should be drawn up and an "Invitation to Tender" be addressed to firms who are capable of tendering on contracts in their field of competence.
- vi. Immediate notification of contract awards should be endeavored."

RESPONSE:

Arctic Gas concurs.

Page 13 Bonding Recommendations

- i. Over the longer term, we encourage more surety companies to undertake performance bonding in the Territories.
- ii. Alternatively, should increased competition in this area fail to materialize, we recommend, for consideration, the establishment of a Territorial insurance corporation for the sole purpose of providing bid and performance bonding for companies operating in the Northwest Territories.
- iii. We recommend, as a second alternative, encouraging banks to offer Letter of Guarantee in support of bonding applications.

RESPONSE:

Although Arctic Gas has no responsibility for actions suggested by these recommendations, we support efforts to increase the availability of bonding.

Page 14 Bonding, Alternative Recommendations

"i. Some contracts can be tendered on a "Piece-meal" basis, thus enabling small business to participate because they can obtain bonding within certain limits.

ii. In cases where bonding is unobtainable, this requirement will be waived by the successful pipeline applicant and producers in return for the right to oversee the operations of the local sub-contractor in order to ensure satisfactory operational performance.

iii. In order to increase the participation of the small contractor, we recommend the use of the service contract approach whenever feasible, as was referred to above."

RESPONSE:

Arctic Gas agrees in general terms with these recommendations and will evaluate them on a case-by-case basis to see if the situation warrants this treatment. We must, however, use efficient and cost-effective procurement techniques.

Page 15 Bid Differential Recommendation

"We propose that a scaled tender differential allowance be accorded to Northern contractors."

RESPONSE:

Arctic Gas' position on a bid differential preference is outlined in our response to Commission Counsel's submission on Northern Business - Native Entrepreneurship.

Page 15 Materials Supply Contracts Recommendation

"i. All tenders for materials and supplies should be called F.O.B. place of use rather than origin of supply."

RESPONSE:

This recommendation would be impossible to implement, since it would require all suppliers to arrange their own transport and logistics. Due to the scale of our requirements, Arctic Gas must coordinate this function.

Page 16 Materials Supply Contracts Recommendation

"ii. It is further recommended that the successful applicant and his agents establish a purchasing office in the Mackenzie Valley to deal with resident business."

RESPONSE:

Arctic Gas agrees with the objective of this recommendation and will establish a local procurement presence in the North; however, the details on how it should operate will have to be worked out at a later date.

Page 16 Materials Supply Contracts Recommendation

"iii. Should the lowest price quoted by eligible northern suppliers exceed the bid differential allowable in their respective regions, the pipeline, producer companies and their agents should be permitted to call for open tender."

RESPONSE:

Arctic Gas cannot agree to this recommendation. We must always be able to call for open tenders not only to ensure acquisition of time-critical items, but to be able to measure the actual differential in tenders, if any, which is occurring between northern and southern firms.

Page 16 Materials Supply Contracts Recommendation

"iv. As to minimize price inflation at the local level, we recommend that prime contractors consult with local suppliers in view of exceeding the latter's ability to supply. The onus of the application of this recommendation lies, we think, on the local supplier. The local Chamber of Commerce could conceivably serve some regulatory function."

RESPONSE:

This issue was discussed under "Northern Business - Regulation of Business" in our response to Commission Counsel's submission.

Page 17 Air Charter Contracts Recommendation

"Tender requirements for air charter contracts should specify job requirements and permit use of equivalent aircraft."

RESPONSE:

This is the manner in which Arctic Gas would normally call tenders.

Page 17 Size of Contracts Recommendation

"Where possible, contracts should be structured to accommodate small and medium sized northern based businesses."

RESPONSE:

Arctic Gas agrees with this principle.

Page 18 Payment of Accounts Recommendation

"All major contracts should contain clauses providing for payment of interest on overdue progress and final payments when all conditions for payment have been met."

RESPONSE:

The principle of this recommendation is acceptable, however, this item is usually negotiated with individual contractors.

Page 18 General Recommendation

"In order to create an atmosphere conducive to participation of northern businesses, a Mackenzie District Business Association must be established to assist in resolving problems currently being experienced by northern firms, and to serve the needs of this sector throughout the pipeline construction period."

RESPONSE:

The Arctic Gas response to this recommendation is contained in our commentary on the submission of Commission Counsel under Regulation of Business. It is a suggestion which we made in 14.c of our application and spoke to in Mr. Trusty's testimony before the Inquiry.

IV. Personnel Problems and Recommendations

Page 20 Competition with Government for Human Resources Recommendations

- "i. It is recommended that a task force be created by the Department of Indian and Northern Affairs to:
- a) Review all existing benefits provided to employees of all government departments, crown corporations, industry and business;
 - b) To study and receive briefs from all interested parties on proposed methods of subsidization; and
 - c) To prepare subsidy guidelines which would be equitable for all residents of the N.W.T. and acceptable to the above mentioned parties and the Department of National Revenue and Taxation.
- ii. It is further recommended that, upon completion of the above mentioned study, that the present inequities of subsidization of living quarters be replaced by a substantial non-taxable home owners' grant to residents of the N.W.T."

RESPONSE:

This is a matter for government response.

Pages 22 and 23 Vocational Training Recommendations

- "i. Vocational training of residents of the Northwest Territories must be increased.
- ii. The capacity of the existing training facility (AVTC) must be increased to meet the current and anticipated increased requirements

for skilled human resources.

iii. The increased capacity recommended above should be reflected elsewhere in the study region, particularly in the Delta.

iv. Businessmen must be encouraged to actively participate in training programs which are presently available.

v. More funding should be made available to the Canada Manpower Centre for on-the-job training programs as a means of increasing the number of trained northern residents. In addition, the program's terms of reference should be expanded to include re-training and/or upgrading of personnel with university or college degrees.

vi. Training programs should be revised to include a two-year training period for construction trades associated with pipeline and related work to ensure an adequate work force for both pipeline contractors and northern businesses."

RESPONSE:

These recommendations all deal with matters which are the responsibility of government.

Pages 23 and 24 Management Training Recommendation

"Business management seminars should be established to provide business people with a background relating to a wide range of administrative and financial matters."

RESPONSE:

Arctic Gas supports the objective of this recommendation.

V. Transportation

Page 25 Roads Recommendations

- "i. That the Dempster Highway be extended toward the Delta on the understanding that a portion remain uncompleted until termination of pipeline and gas plant construction.
- ii. That an all weather road be built, without undue delay, between Inuvik and Tuktoyaktuk.
- iii. That, in keeping with the general spirit of recommendation i. (above), the Mackenzie Highway be extended to the Delta."

RESPONSE:

These recommendations are the responsibility of government.

Page 27 Roads Recommendations

- "i. That a bridge be constructed across the Mackenzie River.
- ii. It is strongly recommended that the N.W.T. portion of the Mackenzie Highway be considerably upgraded with serious consideration given to paving this stretch of the highway.
- iii. It is recommended that priority be given to overcoming the construction problems associated with that portion of the Mackenzie Highway currently being upgraded in the N.W.T."

RESPONSE:

These recommendations are the responsibility of government.

Page 27 Commercial Air Services, The Delta and Central
Mackenzie Recommendation

"A review of the operating costs of air transportation facilities, both ground and air, north of the 60th parallel should be undertaken. Costs and/or taxes levied by Federal authorities e.g. Ministry of Transport, should be reduced north of the 60th parallel."

RESPONSE:

This is the responsibility of government.

VI. Miscellaneous Operational Considerations and Recommendations

Page 28 Competition from Crown Corporations Recommendations

- "i. The Northern Transportation Co. Ltd. should phase out its trucking operations and restrict itself to barging.
- ii. That the Federal Government discourage expansion and/or involvement of crown corporations into service areas where competitive enterprise is able, and willing, to provide adequate standards and at an acceptable cost."

RESPONSE:

These matters are the responsibility of government.

VII. Unionization

Page 31 Recommendation

"An alternative would be to designate the prime contracts as union and

request that the successful pipeline applicant and producer companies retain some of the subcontracts which they would tender themselves to non-union northern firms."

RESPONSE:

The pipeline simply could not be built under an "open shop" situation, since it requires the use of many very specialized skills which are organized on an international basis.

The desirability of designating some small isolated (physically and temporary) jobs as open to non-unionized contractors is recognized and will be developed by Arctic Gas. The cooperation of government and unions in order to implement this recommendation will be required.

VIII. Regulatory Considerations and Recommendations

Page 33 Ministry of Transport Recommendations

- i. That a Ministry of Transport inspector be permanently located in Yellowknife.
- ii. An orientation program for pilots and crews on navigation and survival in a northern environment be established.
- iii. In order to foster the development of resident northern air carriers, it is proposed that a northern air transport commission be established. This commission would be comprised of established northern residents and would parallel the Federal Air Transport Commission."

RESPONSE:

These recommendations are the responsibility of government.

Page 34 Price and Income Controls Recommendation

"Wage control limits will have to be raised in the N.W.T. in order to provide the northern entrepreneur with an opportunity to remain competitive during the pipeline and gas plant construction period. At the same time, guidelines must be established to return prices and salaries to pre-construction levels, allowing for a cost of living increase."

RESPONSE:

This is a government responsibility.

Page 35 Motor Vehicle Operating Authorities Recommendations

- "i. The Government of the Northwest Territories should immediately negotiate agreements with Alberta and British Columbia to facilitate the granting of authorities to N.W.T. based trucking firms for operations of Alberta and British Columbia highways.
- ii. That the regulations of the Highway Transport Board and the mechanism of enforcement be reviewed and modified as necessary in order to effectively translate the intent of the public service vehicles ordinance and thereby restore order to the trucking industry."

RESPONSE:

These are matters for government response.

Page 36 Labour Standards Recommendation

"The labour standards ordinance should be revised to make provision for extended working hours for all businesses during the pipeline

construction period."

RESPONSE:

This is a government responsibility.

Page 36 Mechanic's Liens Recommendation

"Completely reviewed and updated."

RESPONSE:

This is a government responsibility.

Page 37 Documents Registry Recommendations

- "i. Chattel mortgage for equipment bearing serial numbers should be recorded separately from other household goods by serial number and name owner thus permitting a cross referenced search.
- ii. It is further recommended that a system be implemented to simplify the search procedure and reduce the time required to have the search completed."

RESPONSE:

These are matters for government response.

Page 37 Workers' Compensation Recommendation

- "i. The rates, classifications and regulations of Workers' Compensation insurance should be adjusted to bring the ordinance into line with the southern provincial areas.

ii. It is further recommended that, in order to ease the burden on employers, premiums be payable in instalments, rather than in one lump sum at the beginning of the insurable period."

RESPONSE:

This is a government responsibility.

Page 38 Municipal Regulations Recommendation

"i. City officials should embark upon a program to increase available commercial, industrial and residential land to meet existing needs as well as the requirements generated by future developments."

RESPONSE:

This is a government responsibility.

IX. The Mackenzie Valley Pipeline Authority (MVPA)

Page 39 Recommendation

"It is proposed that a Mackenzie Valley Pipeline Authority (MVPA) be formed to provide a single interface between the pipeline companies and government departments along the pipeline corridor north of the 60th parallel."

RESPONSE:

Arctic Gas made its position on a single regulatory agency clear in its final argument (T. 200, Pages 31699 - 31707) and in comments on the submission of Commission Counsel under the heading Project Regulation.

RESPONSE TO THE SUBMISSION OF THE
INDIAN BROTHERHOOD OF THE NORTHWEST TERRITORIES

This submission consists of an extensive preamble to one recommendation that no permit to build the pipeline should be issued prior to the settlement of the land claims.

The Arctic Gas argument (T:Vols. 200 and 201, p. 31635 to 31721-2) contains its position on native land claims and describes the consequences of delaying economic development of the North.

COMMENTS ON SUBMISSION OF

CARSON TEMPLETON

GENERAL

In making the following responses, Arctic Gas has followed Mr. Templeton's written final argument submitted to the Inquiry and dated November 8, 1976.

1.1 Land Use Planning

1.1.4 (Portion) "...The second stage, and no sooner than 18 months later,....".

RESPONSE:

Eighteen months is an unrealistically long period. Arctic Gas does not disagree with the development of a land use plan if the government decides that it is necessary.

1.1.6 (Portion) "...Project approval would be no sooner than 18 months after approval in principle...".

RESPONSE:

See 1.1.4 above.

1.1.7 (Portion) "That the Mackenzie Delta Land Use Zone be considered a land freeze zone until the Zoning Authority is established. This would mean that before any development activity could take place, the Zoning Authority would have to hold hearings before zoning changes could be made to the Mackenzie Delta zone. Such changes would define the boundaries of the change and provide documentation for the reasons for the zoning change and the alternative considered. Such documentation would be signed by the authorities making the judgment and be publically accessible documents."

RESPONSE:

There is no evidence to support the necessity to shut down all the work that is currently underway in the Mackenzie Delta.

1.2 Project Routing

- 1.2.1 (CAGPL) "Having considered the projects in the Mackenzie Delta coming before this Inquiry, I make the following recommendations:
1. that the Cross Delta Route proposed by Canadian Arctic Gas not be approved, and; I therefore have no hesitation in recommending that the interior route alternative be used if the CAGPL application is accepted. I further recommend that if the CAGPL interior route is adopted, that the pipeline follow the Dempster Highway through the Richardson Mountains."

RESPONSE:

Not acceptable. See response to Commission Counsel, Location and Routing, Prudhoe Bay Lateral, Recommendations #4, 7, 8.

1.3 Single Agency, Staffing and Timing

RESPONSE:

See response to CARC Argument, Implementation; and Response to Commission Counsel, Project Regulation.

1.4 Auditor Group and Ombudsman

- 1.4.1 "that the Public be kept informed about the Project through establishment of an Environmental Auditor Group that is clearly independent of Government, and the Pipeline Company and its contractors."

RESPONSE:

The government should not appoint an independent public auditor group. The Inquiry has heard much evidence about groups of this kind

particularly as they have functioned in the Alaskan experience. It is submitted that such groups have proven to be largely ineffective in being able to monitor large construction projects on a regular basis and even more ineffective in effecting any changes in construction activities. The expenditure of funds on such an organization therefore seems unjustified, and the fiction that the public interest is being protected by the existence of such a group seems potentially harmful.

2.1 Applicants Responsibilities

RESPONSE:

As soon as is practicable after receiving the necessary project approvals from Government, the Company shall provide the Agency with an organization chart of the Company as it will be structured for construction purposes and for operating purposes.

The company will be responsible for compliance by its contractors and suppliers with the conditions imposed on the Company by the Government and the Agency.

2.1.2 Specific Code Requirements

RESPONSE:

The Government should catalog and identify all codes, statutes and ordinances pertinent to the construction and operation of the pipeline. It should identify areas requiring modification and initiate action to achieve such modification.

The compilation of codes, statutes and ordinances will establish

the regulations to be followed by the Company in the execution of the project. Any conditions imposed during design review or construction surveillance will conform to the established codes, statutes and ordinances.

The major parameters to be established by the Government for regulation of the Arctic Gas project must be fixed prior to the commencement of project activities so that Arctic Gas will have reasonable assurance that major changes to these conditions will not occur. There will be necessity for minor changes but care must be taken to establish that the major conditions are not likely to be subject to change.

The Company shall, upon notification or discovery of an environmentally hazardous situation, occurring as a result of pipeline project activities, immediately assume all responsibility and costs to mitigate the situation and shall continue to do so until notified otherwise by the Agency.

The Company shall assume full responsibility to mitigate any hazardous or emergency situation resulting from or related to pipeline activities. The Company shall assist in mitigating any other hazardous or emergency situation to the fullest extent possible under the pipeline project plan.

Where the cause of an environmental emergency situation is found by the government to be unassociated with activities relating to the pipeline, the government shall pay the Company for its costs incurred in mitigating the situation.

A performance bond should not be necessary since a project of this magnitude is sufficient base for guarantee of the Company's performance.

2.2 Applicant's Environmental Organization

RESPONSE:

General Note re Code: Arctic Gas does not accept all statutes and provisions of the EPB code (See 2.1.2 above).

2.2.1 Acceptable.

2.2.2 Acceptable (within general commend on Code above).

2.3 Applicant's Communication with Agency

RESPONSE:

Review of the Preliminary Design by the Agency shall be on-going during the period of preliminary design and should therefore be complete very shortly after preliminary design is complete. There is no requirement for a prescribed time period for this function.

Final Design Review would be conducted in the same manner, thereby minimizing time requirements to effect Leave to Construct.

Leave to Construct can then be granted for segments of the project e.g. compressor station, pipeline spread, river crossing.

2.4 Applicant's Environmental Training

2.4.1 Acceptable

2.4.2 P. 30, No. 10.5:

"During construction and commissioning of the Pipeline System, Permittee shall conduct frequent (not less than monthly) on-the-job upgrading training courses for all personnel to be employed on the Pipeline System, for the purpose of emphasizing the environmental protection requirements of existing Federal and Territorial regulations and this Code."

RESPONSE:

The period of upgrading training courses should be based on a determined need through actual observation and testing. The upgrading may also be best varied with regard to the particular damage potential of the individual.

3.0 Recommendations on Environmental Protection

3.1 Environmental Code

RESPONSE:

Arctic Gas agrees with the intent of the code and by and large with the content. However, Dr. McCart has testified that it is totally unreasonable and counterproductive to state quantitative measurements, standards, dates, etc., in most instances. Each situation must be evaluated on its own unique circumstances with site-specific evaluations used to optimize environmental protection. A code should identify sensitive areas or situations and the types of impact which would have significant effects. With this information, the designer can incorporate the best combination of mitigative techniques.

"(p) (Page 34) That "arctic construction" techniques be used throughout the Territories.

RESPONSE:

"Arctic Construction" is not appropriate to all points along the system within the Territories. Techniques such as snow roads and land clearing were proposed to protect areas susceptible to damage by subsequent

thaw. Clearly there is little to be gained by using such techniques south of the Last Point of Cold Flow since operation of the pipeline will cause degradation of the permafrost islands.

RECOMMENDED ALTERNATIVE:

Delete.

(q) (Page 34) That a surcharge berm be limited to 3 ft in height.

RESPONSE:

Arctic Gas considers that this recommendation is too restrictive and involves a question of final design which can best be left to the Agency for decision when all the site specific facts are available.

RECOMMENDED ALTERNATIVE:

Delete.

22.14 (Page 40) "That chilling of the gas be terminated at the Willowlake River to prevent drainage interruption and frost heave problems. Maintaining chilling to this point is required to prevent extensive ground subsidence."

RESPONSE:

Arctic Gas does not agree that chilling must cease at the Willowlake River. In view of the very high incidence of frozen terrain over the Ebbutt Hills, it may be preferable to cease chilling further south.

RECOMMENDED ALTERNATIVE:

Delete.

3.2 Environmental Atlas

3.2.1.1 Archaeology, P. 46, No. 46:

"Activities near known archaeological sites should be located and carried out so that the ability of interpreting such sites is not impaired".

RESPONSE:

Where archaeological sites cannot be avoided, these sites must be salvaged prior to those construction activities which would impair their value.

3.2.1.3 Harassment of Wildlife by Equipment and Aircraft, P. 46, No. 10:

"Aircraft traffic (except into established airports) should be prohibited within 2 miles (3.2 km) of the Mackenzie River from Camsell Bend to Inuvik from 1 May to 15 June. Flights across this restricted zone should be direct, at altitudes greater than 2000 feet (600 m) above ground level, and should avoid river islands. (EPB Atlas; Exhibit 135, Vol. III, based on T: 97 - 14796)."

RESPONSE:

The word "prohibited" in the second line should read "minimized".

3.2.1.3 Harassment of Wildlife by Equipment and Aircraft, p. 47, No. 20:

"General aircraft traffic during construction and operation should be prohibited on the Yukon Coastal Plain between Shingle Point and the Alaskan border from 15 August to 15 October. Emergency traffic over the Coastal Plain during this period should be restricted to IFR flights at a minimum altitude of 5000 feet (1500 m) above ground level. (EPB Atlas; Exhibit 135, Vol. III)."

RESPONSE:

Arctic Gas minimum flight elevation of 2,000 ft AGL has been determined to be adequate. During snow goose staging on the North Slope,

wherever possible flights should use flight paths offshore such that disturbance to geese is minimal.

3.2.1.3 Harassment of Wildlife by Equipment and Aircraft, p. 47, No. 23:

"Aircraft traffic over Dall sheep range should fly at altitudes of at least 2000 feet (600 m) above ground level. Noisy facilities should not be permitted to operate within 2 miles (3.2 km) of wintering or lambing areas of Dall sheep. (EPB Atlas; Exhibit 135, Vol. III)."

RESPONSE:

If noise from company facilities is detrimental to Dall sheep, silencing equipment shall be installed to reduce noise levels to acceptable levels.

3.2.1.3.2 Actions Not Covered by Code, p. 48, No. 16:

"Construction should be discontinued on the Coastal Plain by 15 May, and the ditch filled. Aircraft should not fly below 500 feet (150 m). Road traffic and activity at stockpile sites should be stopped from 20 May to 20 June. (EPB Atlas; Exhibit 135, Vol. III)."

RESPONSE:

Activity should be restricted only when it presents significant disturbance to terrain, fish, or wildlife, not by arbitrary dates which do not differentiate the type of activity.

3.2.1.3.2 Actions Not Covered by Code, p. 48, No. 21:

"Caribou migrations should be monitored during the years of construction to give advance warning of the approach of animals so that the construction spread can be shut down and the ditch filled. Strung pipe should be turned parallel to the direction of travel of the caribou. (EPB Atlas; Exhibit 135, Vol. III)."

RESPONSE:

It is not likely that it will be necessary to fill the ditch. Ditch plugs or bridges may prove adequate to enable unimpeded movement of the herd.

3.2.1.4 Specific Restrictions, p. 49, No. 8:

"All ground activities within a 2-mile (3.2 km) buffer zone of active peregrine falcon, gyrfalcon, golden eagle, or osprey eyries should be prohibited from 1 March to 1 September. Any molestation of raptors by humans should be prohibited. (EPB Atlas; Exhibit 135, Vol. III)."

RESPONSE:

A 2-1/2 mile buffer zone is preferable for most types of activities.

3.2.1.4.2 Expands Restrictions in Code, P. 49, No. 28:

"Exposure of the ice-rich soils by cut grading or damage to the peat layer, can lead to thermokrast subsidence, slumping and, on sloping terrain, to the formation of deep gullies. Fill grading rather than cut-grading should be used. (EPB Atlas; Exhibit 135, Vol. III)."

RESPONSE:

The marginal note accompanying the above paragraph refers to 15.3 (a,b) of the Code. The context of the recommendation is not clear since 15.3 (a) refers to operation of vehicles and equipment and 15.3 (b) refers to permafrost areas outside the Pipeline System lands. However, it is unacceptable downstream from the Last Point of Cold Flow unless it is limited to access outside the pipeline right-of-way. Cut slopes may be necessary in some instances and can be stabilized so as not to be damaging to the environment.

RECOMMENDED ALTERNATIVE:

28. Exposure of the ice-rich soils by cut grading or damage to the peat layer, can lead to thermokarst subsidence, slumping and, on sloping terrain, to the formation of deep gullies. Fill grading rather than cut-grading should be used through such terrain where practicable.

3.2.1.4.2 Expands Restrictions in Code, p. 49, No. 29:

"The major concern in this area is the possible initiation of flow slides as a result of damage to the insulating peat layer or exposure of the mineral soil. Slopes greater than 3° in glaciolacustrine deposits, and 6° in morainal deposits should be avoided if possible. (EPB Atlas; Exhibit 135, Vol. III)."

RESPONSE:

It is not at all clear what area is being referred to. In any event, the recommendation is far too restrictive. For example, how do you cross river valleys in GLB or RKM terrain if you must avoid slopes of the magnitude suggested? Flow slides may ensue only if the terrain is ice-rich and is permitted to thaw.

RECOMMENDED ALTERNATIVE:

29. Delete this recommendation.

3.2.1.4.2 Expands Restrictions in Code, p. 50, No. 38, 37, 33:

"38. Geotechnical data indicate that the lacustrine deposits are ice-rich. Areas underlain by them thus have high potential for active layer detachment and thaw flow slides. The alluvial deposits can contain massive ice up to 18 feet (5.4 m) deep. Cut banks in these deposits could be subject to extensive flow slides. When banks must be cut, they should be protected by armoring or insulation. (EPB Atlas; Exhibit 135, Vol. III)."

"37. Damage to the insulating peat layer and the exposure of ice-rich mineral soil could lead to severe slumping and thermokarst subsidence. Cut banks in ice-rich soil are not likely to stabilize naturally within a decade. When cutting of the banks is essential, the banks should be protected by armoring or insulation. (EPB Atlas; Exhibit 135, Vol. III)."

"33. Since the recovery of disturbed peatlands (bogs, fens, and sedge meadows) is naturally slow, the area disturbed by the project should be restricted to a minimum. (EPB Atlas; Exhibit 135, Vol. III)."

RESPONSE:

The context of the above recommendations is unclear: however, Arctic Gas agrees in principle with the protection of cut slopes in ice-rich material where instability may ensue and with minimizing the disturbed area of peat lands.

3.2.1.4.2 Expands Restrictions in Code, p. 51, No. 43:

"Water traffic should avoid Escape Reef, Ptarmigan Bay, and the narrows between Herschel Island and the mainland, since these areas are heavily used by moulting waterfowl. (Based on IGL Recommendations, Exhibit 351, p. 12)."

RESPONSE:

Should water traffic be essential in those areas, it should be controlled such that there is minimal disturbance to the moulting waterfowl.

3.2.1.4.2 Expands Restrictions in Code, p. 51, No. 44:

"Barging activities (such as for hauling gravel) between Shingle Point and Shallow Bay and within Shallow Bay should be restricted until August to avoid disturbing calving whales. (T: 133 - 20157)."

RESPONSE:

Barging activities should be restricted in confined areas (such as Shallow Bay) during the whale calving periods such that undue disturbance does not occur.

3.2.1.8 Explosives, p. 54, No. 15:

"Movement of post-calving herds should be monitored, and quarry operations shut down, when caribou are within 10 miles (16 km) of a quarry. (EPB Atlas; Exhibit 135, Vol. III)."

RESPONSE:

Blasting should be controlled or restricted when it causes undue disturbance to significant post-calving herds of caribou.

3.2.1.10 Fuel Storage and Handling, p. 54, No. 2:

"All fuel storage areas should be set back at least 500 feet from water and diked with impervious material so as to contain 125% of the total capacity of all the tanks combined. Contingency plans for fuel spills should be prepared and necessary equipment made readily available. (EPB Code, Section 26; Exhibit 135, Vol. II)."

RESPONSE:

Fuel storage areas should be located away from water where possible in order that the possibility of fuel entering the watercourse is minimized.

3.1.2.13 Water Sources - Yukon Coast, p. 57:

"50) No more than a total of 10% of the volume of water present in this lake should be removed to prevent harming overwintering fish populations. (Based on Water Availability Study, Exhibit 528)"

"51) No water should be taken from this unique spring, nor should the spring be disturbed. (Based on Water Availability Study, Exhibit 528, p. 59)."

"52) Water should only be taken downstream of this point since this spring is used by overwintering fish. (Based on Water Availability Study, Exhibit 528, p. 53)."

"41) No water should be taken from this lake and the lake should not be disturbed as it supplies water to the Komakuk Beach DEW line site. (Based on Water Availability Study, Exhibit 528, p. 52)."

RESPONSE:

Arctic Gas proposes to follow recommendations in Water Availability Study report by Aquatic Environments filed with the Inquiry.

TERMS AND CONDITIONS

Excerpt from Page 58:

"In my opinion, the terms and conditions should be written as a performance specification - not as a construction specification or project handbook. None of us can write a complete handbook for this project nor can we, or should we attempt to, write a detailed construction specification at this stage.

We should, in my opinion, specify as clearly and precisely as we can the results or performance we expect the project to achieve, not how to achieve those results or that performance. Some might argue that all we have to do is give the Performance Specification; "Construct the project so that it will protect the environmental and social fabric and improve the regional economy." But this is not enough. At the other extreme, some might want to put down everything they know about the project in the hopes that it will be useful to the project managers later. This too would be counter productive. When, and if, the government adopts terms and conditions, the terms and conditions will change from recommendations to regulations and may well prevent productive innovation by the regulatory agency and/or the permittee later on."

RESPONSE:

Because of the limited time available Arctic Gas has generally responded to and suggested revisions to the many recommendations for terms and conditions made by Commission Counsel and Participants in the same level of detail in which the recommendation was made (often suggesting that that level of detail was not necessary at this stage). However, Arctic Gas strongly supports the suggestions made above by Mr. C. Templeton, and shares with him the opinion that the "Agency" employees and consultants and the Permittee are best able to prepare the "how to achieve" and "demonstrations of achievement" details which will be required later.

